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REVISION HISTORY

REVISION HISTORY	
07/05/05	First Release
7/28/05	Added Table of Abbreviations, updated Switches and Sensors, Troubleshooting to include Scanner and ADF, and Circuit Board information
9/9/05	Corrected spelling and grammer errors.

ABBREVIATIONS

ADC . . . . Automatic Density Control
AG . . . . Analog Ground
APS . . . . Auto Paper Select
ARC . . . . Auto Registration Control
ASSY . . . . Assembly
ATS . . . . Auto Tray Switching
B. . . . . Black
BCR . . . . Bias Charge Roll
Bk. . . . . Black
BLK . . . . Black
BLU . . . . Blue
BRN . . . . Brown
BTR . . . . Bias Transfer Roll (Transfer Unit)
BUR . . . . Back Up Roll
C. . . . . Cyan
CCD . . . . Charge-Coupled Device
CCW. . . . . Counterclockwise
CLN . . . . Cleaner
CMYK. . . . . Cyan, Magenta, Yellow, Black
CRU . . . . Customer Replaceable Unit
CRUM . . . . CRU Monitor
CTRG. . . . . Cartridge
CW . . . . Clockwise
DET . . . . Detoner Roll
DEVE. . . . . Developer
DIAG. . . . . Diagnostic
DIMM . . . . Dual Inline Memory Module
DISP. . . . . Dispense
DPI . . . . Dots Per Inch

DTS . . . . Detack Saw
DUP . . . . Duplex
ESB . . . . Electro Static Brush
ESS . . . . Electric Subsystem
F . . . . Front
FEED,FDR . . . . Feeder
FFc . . . . Flat Flexible Cable
FIP . . . . Fault Isolation Procedure
GND . . . . Ground
GRN . . . . Green
GRY . . . . Gray
HT . . . . Half Tone
HUM . . . . Humidity
HVPS . . . . High Voltage Power Supply
ICDC . . . . Image Count Dispense Control
ID . . . . Image Density (or Identification)
IBT . . . . Intermediate Belt Transfer (Intermediate Transfer Unit)
INTL,INLK . . . . Interlock
I/O . . . . Input/Output (typically refers to an interface between two devices - i.e. parallel, USB, or
                                            ethernet)
IOT . . . . Image Output Terminal
K . . . . Black
L . . . . Left
L/H . . . . Left Hand
LD . . . . Laser Diode
LDD . . . . Lightly Doped Drain
LED . . . . Light-Emitting Diode
LEF . . . . Long Edge Feed
LH . . . . Left Hand
LV . . . . Low Voltage

LVPS . . . . Low Voltage Power Supply
M . . . . Magenta
MAG . . . . Magnet Roll
MCU . . . . Machine Control Unit
MLB . . . . Main Logic Board
MOB . . . . Marks On Belt
MOT . . . . Motor
MSI . . . . Multi Sheet Inserter
N/P . . . . No Paper
NVM . . . . Non-Volatile Memory
OEM . . . . Original Equipment Manufacturing
OHP . . . . Overhead Project (In this manual, OHP means a transparent sheet.)
OP . . . . Operation
OPC . . . . Organic Photo Conductor
ORN . . . . Orange
PC . . . . Personal Computer
PCDC . . . . Pixel Count Dispense Control
PCU . . . . Photo Conductor Unit
PH . . . . Paper Handling
PHD . . . . Printer Head
PNK . . . . Pink
POP . . . . Paper On Photoreceptor
PPM . . . . Prints Per Minute
PR,P/R . . . . Process
PV . . . . Print Volume
PWB(A) . . . . Printed Wiring Board (Assembly)
R . . . . Right
R . . . . Rear
R/H . . . . Right Hand
REF . . . . Refresher

REGI. . . . . .Registration
RH . . . . .Right Hand
ROS . . . . .Raster Output Scanner
ROT . . . . .Rotary
RTC . . . . .Rubber Tube Charger
RTN . . . . .Return
SEF . . . . .Short Edge Feed
SG . . . . .Signal Ground
SMH . . . . .Special Material Handler
SNR . . . . .Sensor
SOL. . . . . .Solenoid
SOS . . . . .Start Of Scan
STM . . . . .Single Tray Module
SW . . . . .Switch
TEMP. . . . . .Temperature
TM . . . . .Tray Module
TNR . . . . .Toner
TP. . . . . .Thermopile
TR . . . . .Transfer
VIO . . . . .Violet
WHT . . . . .White
XERO . . . . .Xerographic
Y. .Yellow
YEL . . . . .Yellow

XEROGRAPHY CONCEPTS

Monochrome (Single Color) Laser Printer Image Formation

Laser printers employ the Xerographic or Electrophotographic process. This process uses a laser beam to etch the image onto a light sensitive material, high voltages to move toner to the paper and heat to fuse the toner to the media. The entire process can be broken down into 7 steps. The steps are as follows; Conditioning/Charging, Exposure/Writing, Development, Transfer, Separation, Fusing, and Cleaning.
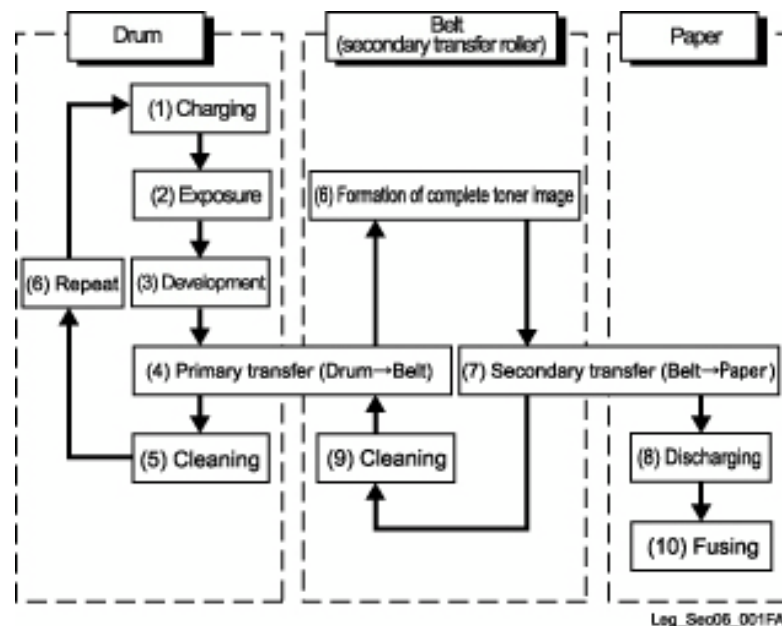
Figure 1: Xenographic/Electrophotographic image formation process

Step 1: Charging/Conditioning

Conditioning is the first step of laser printer image formation process. During this stage, a high negative charge is applied across the entire surface of the *OPC Drum (Organic Photo Conductive)* via the charging roller (see Figure 2). The surface of the *OPC Drum* consists of a photo conductive film material which enables it to accept and retain the negative charge.
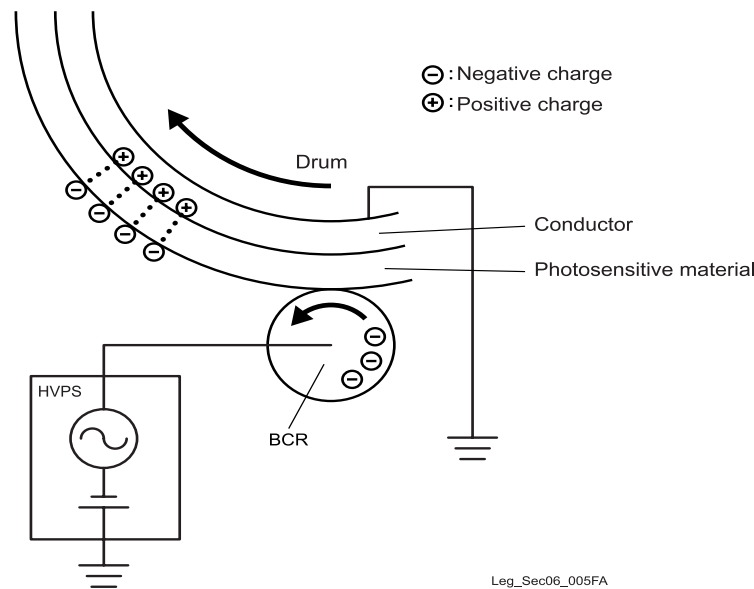
Fig 2: OPC receives a uniform negative charge of approx -600V

Step 2: Exposure/Writing

The image is etched onto the **OPC Drum** using a laser diode, motor driven **polygonal mirror** and a series of lenses and mirrors. The laser beam is deflected by the **polygonal mirror**, through a series of lenses and mirrors and onto the **OPC Drum**. The laser triggers the **SOS (Start Of Scan) Sensor** to indicate the start of the print line, which then signals the logic to begin transmitting the print data. The print engine board controls the speed of the polygonal mirror motor and the modulation of the laser.

- The laser diode emits a beam toward the polygon mirror which redirects the beam towards the surface of the **OPC Drum**. Where the surface of the **OPC Drum** is exposed to the beam, only -50v to -100v remain. The rest of the charge dissipates to ground because the surface cannot hold that amount of charge when exposed to light.
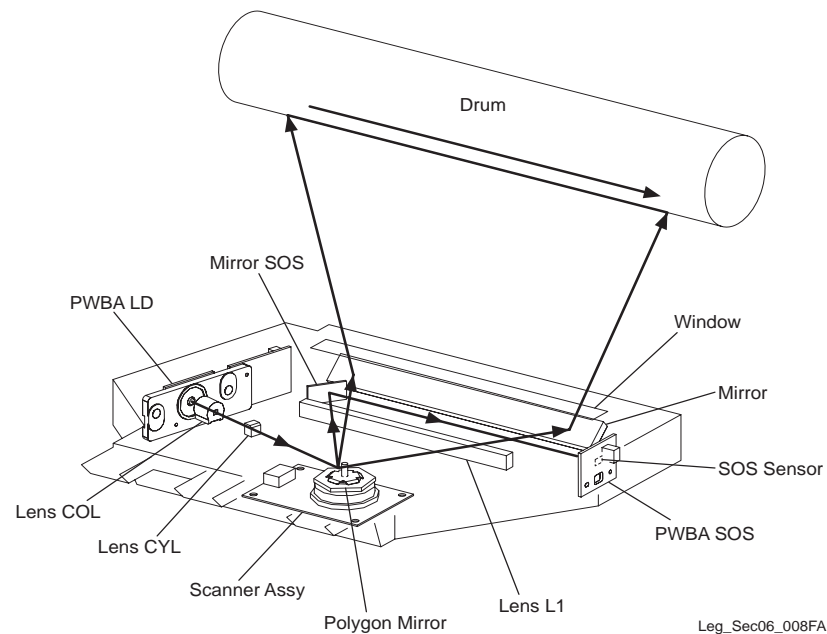
Figure 3: The laser diode writes a latent electrostatic image on the OPC Drum

Step 3: Development

In the development stage, the toner is transferred to the electrostatic image on the **OPC Drum**. The negatively charged toner on the **Magnetic Roller** is attracted to the less-negative latent image on the **OPC Drum**. The amount of toner that is attracted to the **Magnetic Roller** can be altered allowing the print density to be controlled.
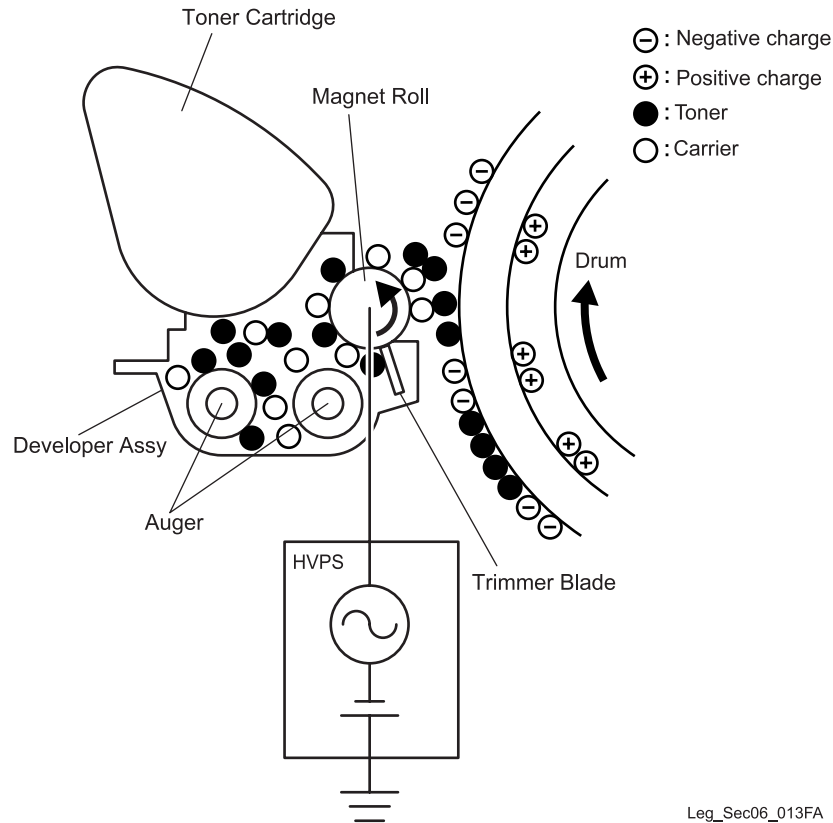
Figure 4: Toner is transferred to the latent image on the OPC via the magnetic roller

Step 4: Image Transfer

During the image transfer stage, the image that is now visible on the *OPC Drum* is transferred to the media. As the media moves through the paper path, it makes contact with the *OPC Drum*. The media is charged with a positive charge causing the toner to be attracted to the media.
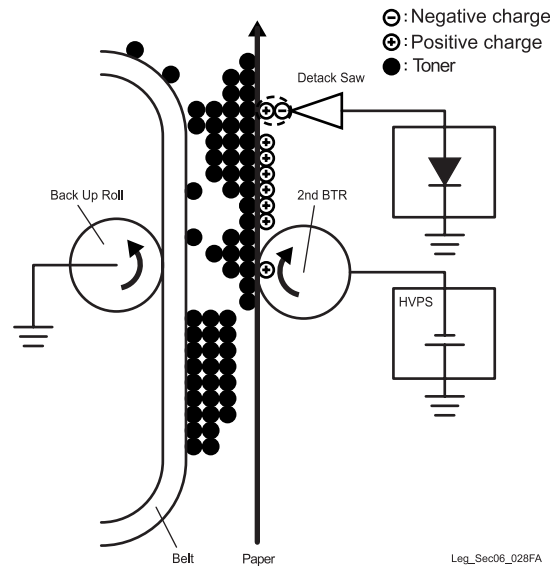
Figure 5: The visible image is transferred to the media by creating a strong +/- charge reaction

Step 5: Separation

During the separation stage, electrodes are used to remove the positive charge from the media, allowing the media to separate from the *OPC Drum*. Some laser printers have a special rubber blade that assists in separating the media from the *OPC Drum*.

Step 6: Fusing
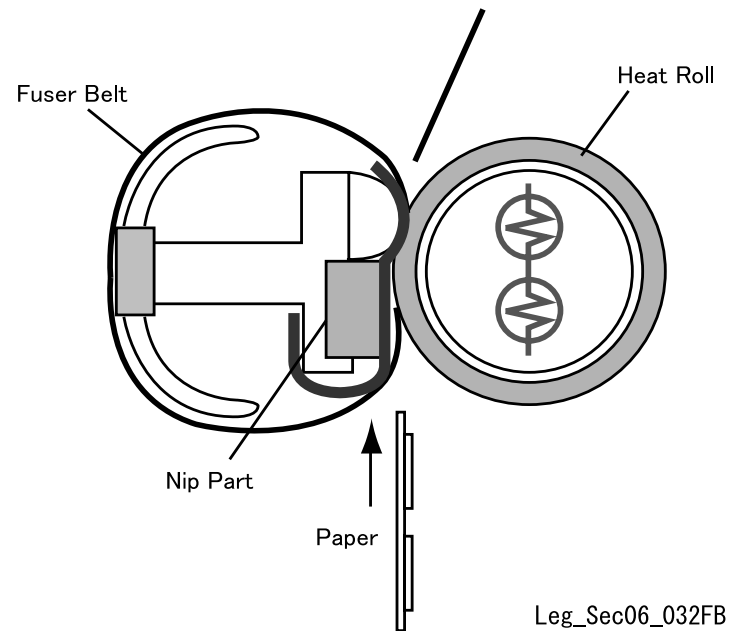
Figure 7: The toner image is permanently bonded to the media by the heat roller and fuser belt.

With the toner now resting on the media, the printer moves the paper through the paper path to the **Fuser** where heat heat is applied to permanently bond the toner into the media. As the media passes into the **Fuser** assembly, the **Heat Roller** and the **Fuser Belt** are used to bond the toner image into the media. As the media moves out from between the **Heat Roller** and **Fuser Belt**, a **Separation Pawl** ensures that the media does not stick to or cling to the **Heat Roller**. The **Fuser Thermistor** monitors the temperature of the **Fuser** and turns the **Heater Lamp** on and off, based on **Fuser** temperature.

Step 7: Cleaning

The final step in the laser printer image formation process is the cleaning stage. During the cleaning stage, any lingering toner residue that was left on the **OPC Drum** needs to be cleaned off before the next image can be created. Since this toner cannot be reused, a **Cleaning Blade** is used to remove the residue from the **OPC Drum** and deposit it into the **Waste Toner Box**.
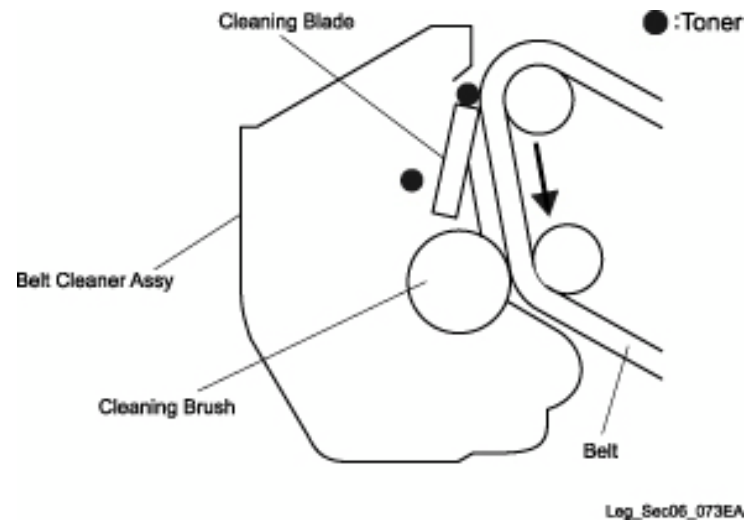

Figure 8: Residual toner is cleaned off the OPC Drum to prepare for next image processing

Color Laser Printer Image Formation

The color laser printer image formation follows very similar processes to that of monochrome laser printers. With the color laser printer however, there are a few differences;

- 3 color **Toner Cartridges** are used along with black for CMYK printing
- Each color of the image is transferred to the OPC Drum in a separate operation. The transfer stage now consists of both a Primary Transfer (**OPC Drum** to **Transfer Belt**) and Secondary Transfer (**Transfer Belt** to **Media**).
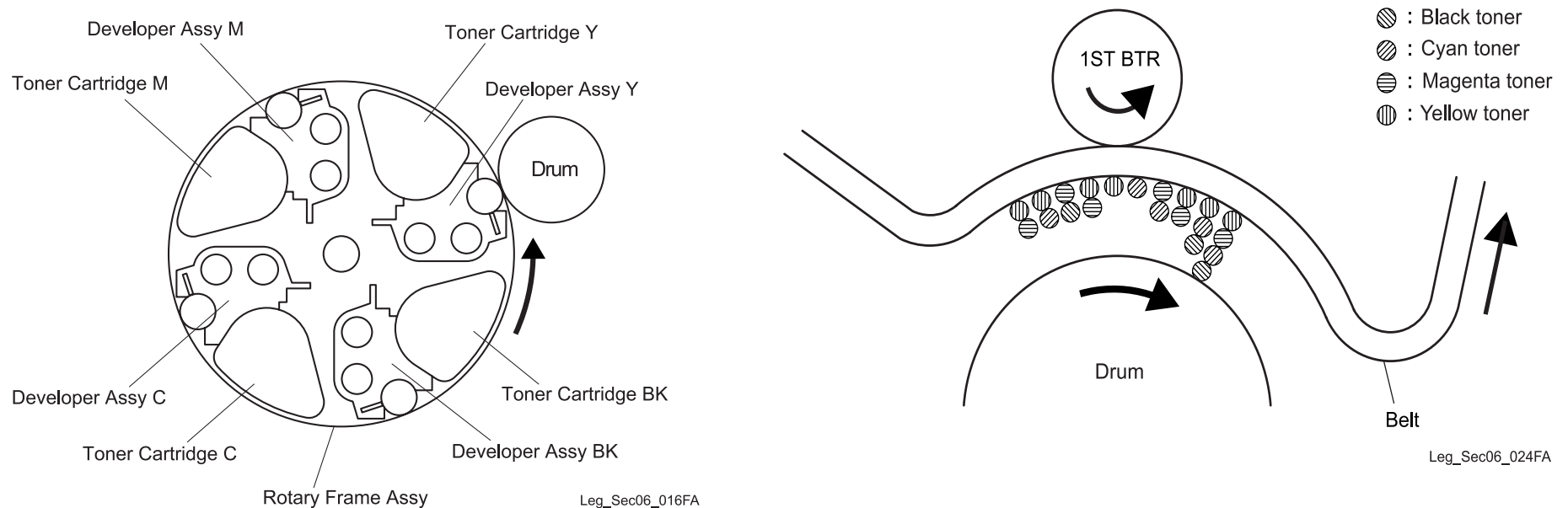
Figure 9: The primary/first transfer stage of a color laser printer

Each color of the image is transferred from the **OPC Drum** to the **Transfer Belt** until all color images are formed. The colors are transferred from darkest color to lightest color (Black first, Magenta second, Cyan third, and Yellow last). Each one of these transfers are called the "Primary Transfer." Then the "Secondary Transfer" stage occurs - the transfer of the image to the media. The image formation process is described below;

Table 1: Color Laser Printer Image Formation Process

| 1	Charging/Conditioning	OPC image drum charged
2	Exposure/Writing	Latent image written on the OPC Drum
3	Development	Image is developed with the toner
4	First Transfer	Transfer of image from the OPC Drum to the transfer belt
5	Cleaning	OPC image drum is cleaned
6	Repeat	While printing in CMYK, steps 1-5 are repeated for each color toner.
7	Second Transfer	Transfers the image from the transfer belt to the media
8	Detach	Electrical charge is removed from paper
9	Cleaning	Transfer Belt is cleaned of residual image
10	Fusing	Toner image bonded onto media
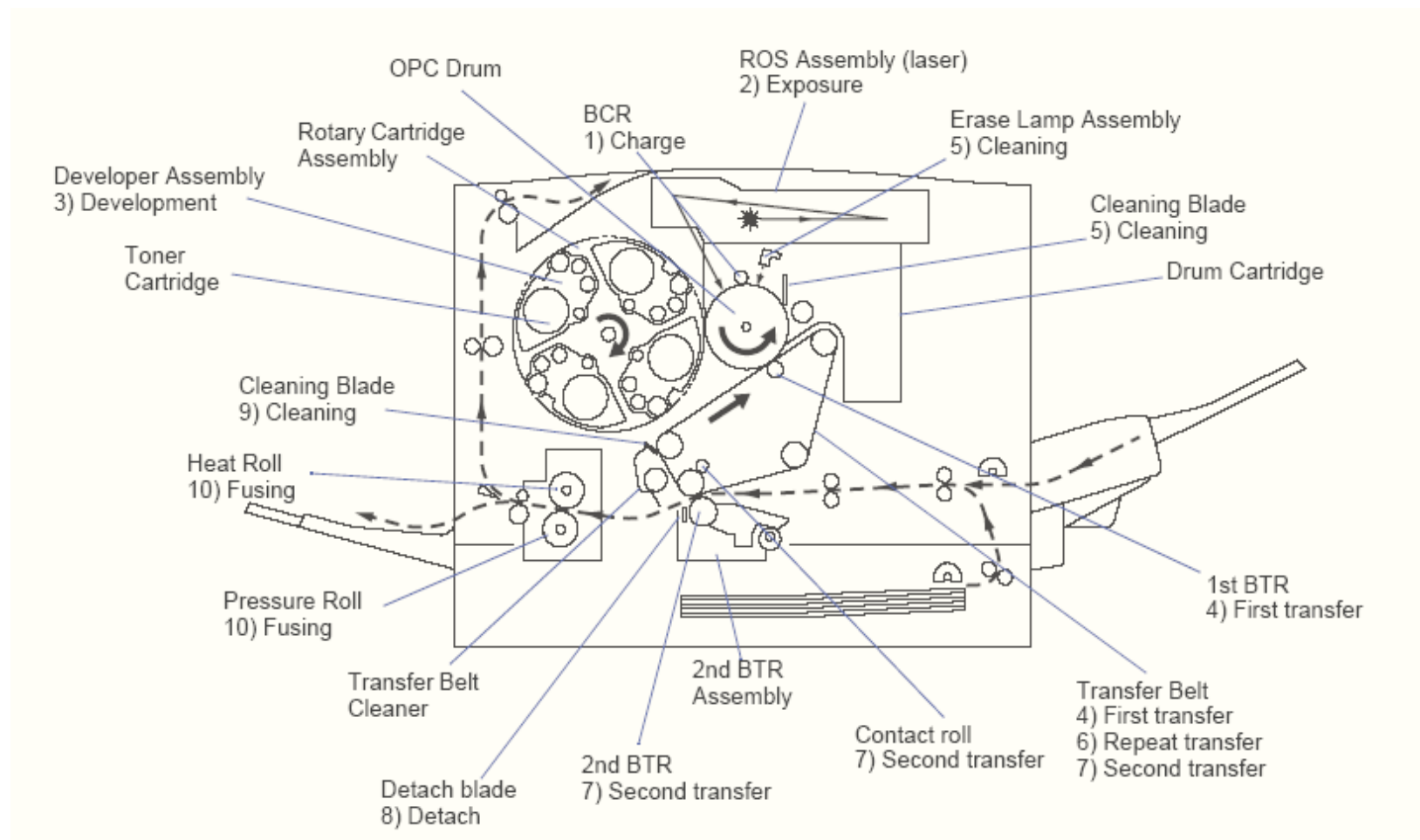
Figure 10: Typical Color Laser printer image formation process

INTRODUCTION

The difference between the two models of the AcuLaser CX-11is as follows:
    CX-11N - No fax capability
    CX-11NF - Fax capability

The AcuLaser CX-11is classified as a Multi-Function Page Printer (MFPP) with the following functions:
- printer (non-networked or networked)
- scanner
- copier
- faxing (AcuLaser CX-11NF only)

Printer

The printer is a 600 dpi (Dots Per Inch) color laser printer capable of color printing at 5 ppm (Pages Per Minute) and monochrome printing at 25 ppm. It utilizes four separate toner cartridges (Cyan, Magenta, Yellow, and Black) and employs single pass color printing. Printer interfaces are 1 USB 2.0 port and 1 Ethernet 10/100 port.

Scanner

The scanner employs a color *CCD* (Charge Coupled Device) and performs full color scanning in a single pass. The optical resolution is 600 dpi. It is capable of scanning images at a rate of 5 ppm for color and 25 ppm for mono-chrome. The scanner includes an Automatic Document Feeder (ADF).

Copier

The copier function utilizes the scanner to digitize the document. The digital image is then internally sent to the printer.

Faxing

The fax function is Super G3 compatible, communicates at speeds from 2.4 Kbps (KiloBits Per Second) to 33.6 Kbps dependant upon phone line conditions, supports both PSTN (Public Switched Telephone Network) and PBX (Private Branch Exchange), conforms to Color FAX standards and conforms to the communication standards of 36 countries. Image resolution is 200 x 200 dpi for both transmit and receive. Faxing consists of two different operations: 1) Sending a fax; and 2) Receiving a fax.

Sending a Fax

The scanner is used to digitize the document to be sent. The data is then internally transmitted to the *Main Logic Board*, then to the *Fax Board,* and then out the RJ-11 telephone jack labeled "line".

Receiving a Fax

Incoming faxes are received from the RJ-11 telephone jack labeled "line". The data is routed from the *Fax Board* to the *Main Logic Board* and then printed on the printer.

CONTROL PANEL OPERATION

CAUTION

!

Except for Support Mode and Initialization of Panel Settings, do not make these functions available to users.

NOTE: Keep the buttons depressed until the LCD display indicates that the function has been activated. See the following pages for the specific LCD display message.

Function	Operating procedure
Support Mode	Hold [Down ▼] and turn the printer ON.
Initialization of EEPROM	Hold [Color], [Reset], and [Left ◀] and turn the power ON (Check for all of the RAM area is performed).
Initialization of Panel Settings	Hold [Reset] and turn the printer ON.
Update Program ROM	Hold [Color], [Reset], and [Down ▼] and turn the printer ON.
Maintenance Mode	Hold [Left ◀], [Up ▲], [Down ▼], and [Right ▶] and turn the printer ON.
Update Engine Program	Hold [Color], [Reset], [Up ▲], and [Down ▼] and turn the printer ON.
RAM Check For All Areas	[Hold [Color], [Up ▲], [Left ◀], and [Right ▶] and turn the printer ON.
MFP Maintenance Mode	Hold [Color], [Up ▲], [Down ▼], and [Right ▶] and turn the printer ON.
Reset CPU When a Service Call Occurs	When a service call error occurs, hold down [Reset], [Left ◀], [Up ▲], [Down ▼], and [Right ▶] simultaneously.
Display Detailed Information When a Service Call Occurs	Press [Reset] , [Left ◀], and [Right ▶] when a service call error occurs.

Support Mode

Support Mode enables access to the following settings via the Setup function:
- LCD Panel Backlight control (ON/OFF/AUTO)
- Print Density Adjustment based on media type/thickness
- Feed Offset - The vertical position at which to start printing
- Scan Offset - The horizontal position at which to start printing

To enable Support Mode:

1. While depressing the **Down Arrow** ▼ button, power the CX-11on.

2. Keep the **Down Arrow** ▼ button depressed until "**SUPPORT MODE**" is displayed in the upper left corner of the *LCD Panel*.

Changing the LCD Panel Backlight Setting

1. Enable Support Mode by depressing the **Down Arrow** ▼ button while powering the CX-11 on. Keep the **Down Arrow** ▼ button depressed until "**SUPPORT MODE**" is displayed in the upper left corner of the *LCD Panel*.

2. Depress the **Setup** button on the *Control Panel*.

3. Depress the **Right Arrow** ▶ button.

4. If **Printer Settings** is not highlighted, depress the **Up Arrow** ▲ or **Down Arrow** ▼ button until **Printer Settings** is highlighted.

5. Depress the **Right Arrow** ▶ button.

6. Depress the **Up Arrow** ▲ or **Down Arrow** ▼ button until **Support Menu** is highlighted.

7. Depress the **Right Arrow** ▶ button. The LCD Panel will display the current LCD Backlight setting.

8. Depress the **Right Arrow** ▶ button.

9. If **Printer Settings** is not highlighted, depress the **Up Arrow** ▲ or **Down Arrow** ▼ button until the desired setting is highlighted.

10. Depress the **Right Arrow** ▶ button to store the setting, the **Left Arrow** ◀ button to cancel the operation, or the **Setup** button to use the new setting until the unit is reset or powered off.

Setting Print Density, Feed Offset, and Scan Offset

1. Enable Support Mode by depressing the **Down Arrow** ▼ button while powering the CX-11 on. Keep the **Down Arrow** ▼ button depressed until "**SUPPORT MODE**" is displayed in the upper left corner of the *LCD Panel*.

2. Depress the **Setup** button on the *Control Panel*.

3. Depress the **Right Arrow** ▶ button.

4. If **Printer Settings** is not highlighted, depress the **Up Arrow** ▲ or **Down Arrow** ▼ button until **Printer Settings** is highlighted.

5. Depress the **Right Arrow** ▶ button.

6. Depress the **Up Arrow** ▲ or **Down Arrow** ▼ button until **Printer Adjust Menu** is highlighted.

7. Depress the **Right Arrow** ▶ button.

8. Depress the **Up Arrow** ▲ or **Down Arrow** ▼ button until the desired setting is highlighted.

9. Depress the **Right Arrow** ▶ button.

10. Depress the **Up Arrow** ▲ or **Down Arrow** ▼ button to change the current setting.

11. Depress the **Right Arrow** ▶ button to store the setting, the **Left Arrow** ◀ button to cancel the operation, or the **Setup** button to use the new setting until the unit is reset or powered off.

> *NOTE: The CX-11 will reset itself upon exiting this function if any changes were made except for changes to the Scan Offset.*

EEPROM Initialization

When the EEPROM is initialized, all counters printed on the Engine Status Sheet are zeroed except the 2nd BTR Counter. For a detailed listing of counters initialized, refer to the AcuLaser CX11/CX11F Service Manual Chapter 6, Table 6-3.

To initialize the EEPROM:

1. Depress the **Color**, **Reset**, and **Left Arrow** ◄ buttons while powering the CX-11 on. Keep the buttons depressed until "**FORMATTING**" is displayed in the bottom left corner of the *LCD Panel*.

2. When formatting is completed, the LCD display will prompt you to input the Country, Language, and Date & Time information.

Panel Settings Initialization

This function sets all Selectype settings back to the factory default.

To initialize the Panel Settings:

1. Depress the **Reset** button while powering the CX-11 on. Keep the **Reset** button depressed until "**SELECTYPE INIT**" is displayed in the upper left corner of the *LCD Panel*.

RAM Check All Areas

This function will perform a test of all RAM in the CX-11. There is no operational nor visual indication that the test is being performed unless an error occurs. Performing a RAM Check adds approximately 10 seconds to the Power On Diagnostic (POD) time.

To initiate the RAM Check All Areas test:

1. Depress the Color, **Up Arrow** ▲ , **Left Arrow** ◄ , and **Right Arrow** ▶ buttons simultaneously while powering the CX-11 on.

Maintenance Mode

Detailed information regarding the Maintenance Mode is located in the AcuLaser CX11/CX11F Service Manual Chapter 6, Section 6.4.

Maintenance Mode Menu Items

- Engine Status Sheet - prints the counted values of each unit which makes up the printer engine.
- Print Log Report - prints a log file of the pages printed by size, print mode (color or monochrome), and coverage.
- Reset 2nd BTR Counter
- Reset C Developer Counter
- Reset M Developer Counter
- Reset Y Developer Counter
- Reset K Developer Counter
- Reset Fuser Counter
- Clear Error Log - Clears the Error Log that is printed on the Engine Status Sheet.
- MCU Data Backup - Backs up most of the EEPROM data.
- MCU Data Restore - Restores EEPROM data that was saved via MCU Data Backup.

To enter Maintenance Mode:

1. Depress the **Up Arrow** ▲ , **Down Arrow** ▼ , **Left Arrow** ◄ , and **Right Arrow** ► buttons simultaneously while powering the CX-11 on. Keep the Arrow buttons depressed until "**Maintenance Mode**" is displayed in the upper left corner of the *LCD Panel*.

2. Depress the **Setup** button on the *Control Panel*.

3. Depress the **Right Arrow** ► button.

4. If **Printer Settings** is not highlighted, depress the **Up Arrow** ▲ or **Down Arrow** ▼ button until **Printer Settings** is highlighted.

5. Depress the **Right Arrow** ► button.

6. Depress the **Up Arrow** ▲ or **Down Arrow** ▼ button until **Maintenance Menu** is highlighted.

7. Depress the **Right Arrow** ▶ button.

8. Depress the **Up Arrow** ▲ or **Down Arrow** ▼ button until the desired menu item is highlighted.

9. Depress the **Right Arrow** ▶ button to execute the function or the **Left Arrow** ◀ button to cancel the operation.

MFP Maintenance Mode

The MFP Maintenance Mode allows access to a set of self diagnostic tools and fax maintenance tools.

To enter MFP Maintenance Mode:

1. Depress the **Color**, **Up Arrow** ▲ , **Down Arrow** ▼ , and **Right Arrow** ▶ buttons while powering the CX-11 on. Keep the buttons depressed until "**MFP Maintenance Mode**" is displayed in the upper left corner of the ***LCD Panel***.

2. Depress the **Up Arrow** ▲ or **Down Arrow** ▼ button until the desired menu item is highlighted.

3. Depress the **Right Arrow** ▶ button to execute the function or the **Left Arrow** ◀ button to cancel the operation.

Self Diagnostics
- Scanner Unit Tests
  - Home Position
  - Lamp Warm-up
  - Cover Open Sensor (Scanner Cover and ADF Cover
  - ADF Paper Sensor
  - ADF Paper Jam Sensor
- Printer Unit Tests
  - Engine
  - RTC
- Fax Unit Tests
  - Image Memory
  - Modem
  - Flash Memory
  - Gate Array Logic

- Control Panel Switches Tests
  - All Switches (buttons) on the **Control Panel**. To exit the test, depress either the **Menu** button or the **Cancel** button until the LCD display changes back to the Self Diagnosis menu.
- B Unit (Anti-counterfeiting feature)

Fax Maintenance Mode
- Memory Clear

Item (Memory Area Category)	Panel Indication	Speed Dial Group Dial One Touch Dial Personal Number/Name	Communication Report Memorized Unfinished Sending Job Info Print Data Info Receiving Job Info	System Counter	System Error History	Internal Error History	System Parameter
ALL	All area	O	O	X	O	O	O
Fax user	User area	O	X	X	X	X	O
Fax system	System area	X	O	X	O	O	O
Fax system counter	Counter area	X	X	O	X	X	X
Fax error history	Error area	X	X	X	O	O	X
Fax system parameter	Parameter area	X	X	X	X	X	O

Legend: 0 = Cleared

X = Not Cleared

- Memory Check - Read/Change memory data
  Do not access Memory Check unless instructed by Epson's Advanced Technical Support Department.
- Parameter Check - Read/Change fax parameters
  Do not access Memory Check unless instructed by Epson's Advanced Technical Support Department.
- Module Check
  - Image Memory
  - Modem
  - Gate Array Logic
  - Flash Memory
- Signal Check
  Do not access Memory Check unless instructed by Epson's Advanced Technical Support Department.

MOTORS, SOLENOIDS & CLUTCHES

Motors

Printer Motors

*2nd BTR Retract Motor (*PPL Ref # 11-01-07)
Brings the **2nd BTR** into contact with the paper during the 2nd transfer process and moves the **BTR** away from the paper after the transfer is finished. The motor drive rotates the shaft and the eccentric cam attached on the shaft. The eccentric cam pushes the lever for the **BTR** to bring it into contact with the paper for transferring the toner image on the **Transfer Belt** to the paper. When the transferring is finished, the **2nd BTR Retract Motor** starts to rotate again and the lever is returned to its original position by spring force, causing the **BTR** to move away from the paper.

FSR Motor (PPL Ref # 11-01-03)
The **Fuser Motor** drives the **Heat Roller** in the **Fuser Assembly.**

*Mag Motor (*PPL Ref # 11-01-04)
The **Magnet Roller Motor** rotates the **Magnet Roll** in the **Developer Assembly**.

*Micro Motor (*PPL Ref # 11-01-07)
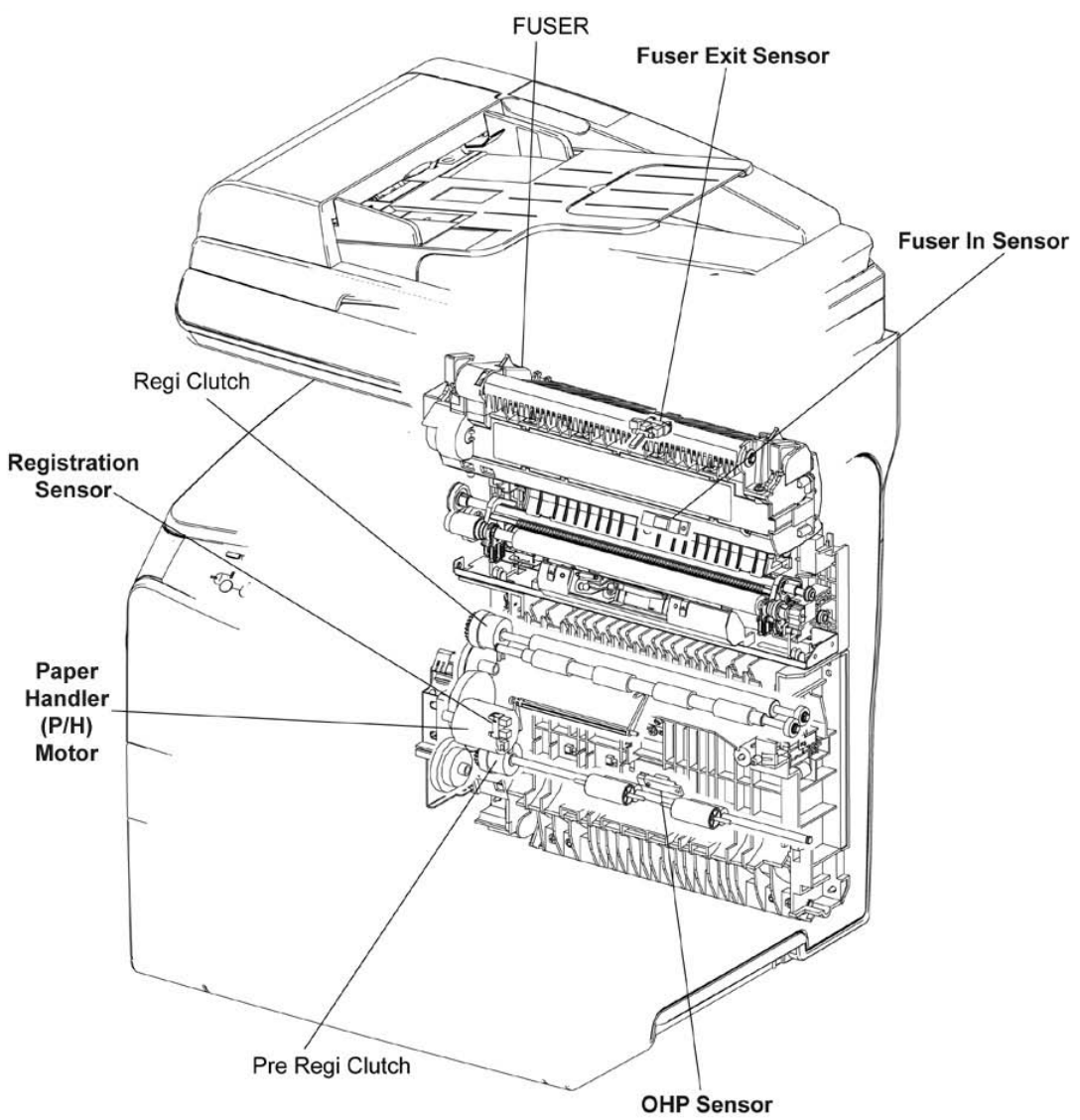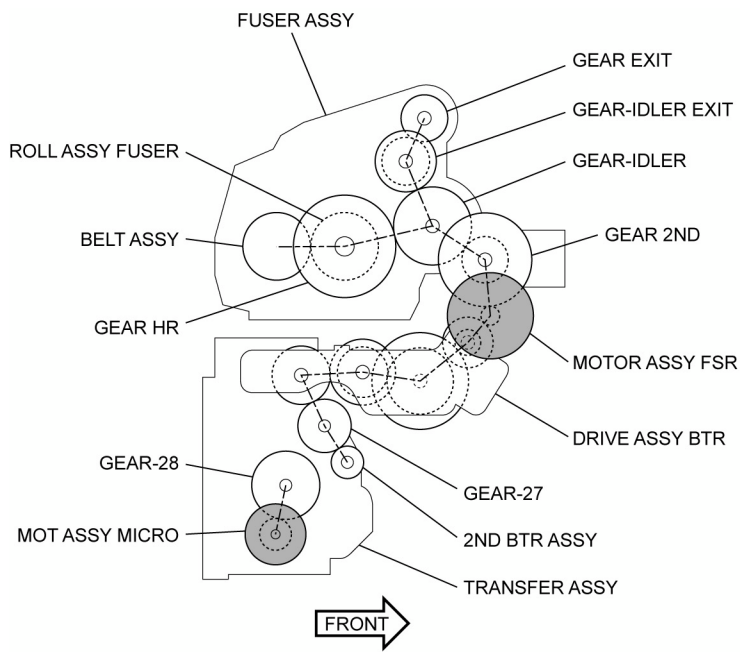See 2nd BTR Retract Motor

*PH Motor (*PPL Ref # 05-02-20)
The **Paper Handler Motor** is a DC motor that drives the **MSI** (Multi-Sheet Inserter) and the rollers in the registration section.
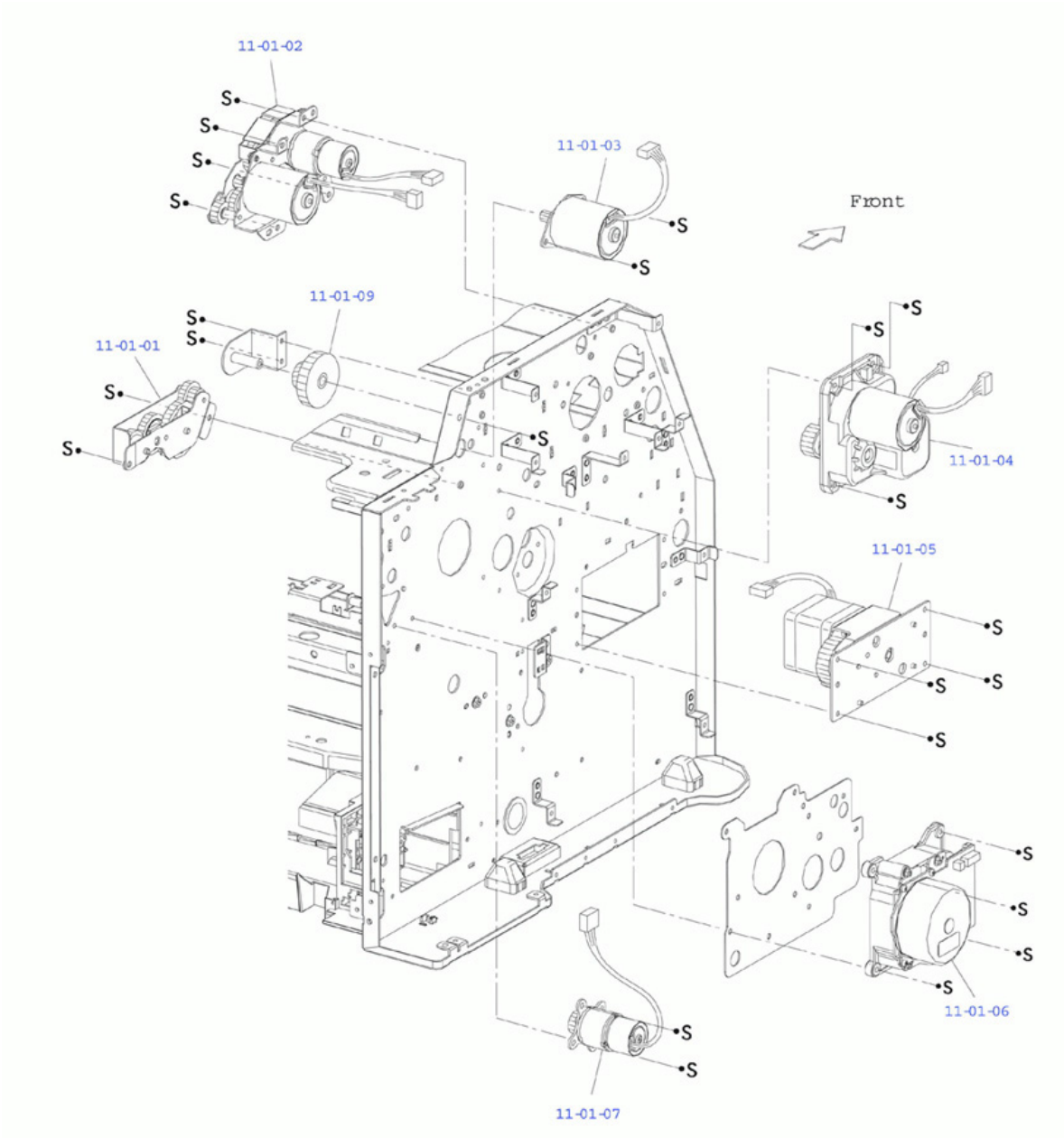
*P/R Motor (*PPL Ref # 11-01-06)
The **P/R Motor** drives the **Photoconductor Drum** which is located in the **Developer Unit**.

*Rot Motor (*PPL Ref # 11-01-05)
The **Rotary Motor** rotates the **Rotary Frame Assembly** that holds the **Developer Assemblies**.

FUSER ASSY
GEAR EXIT
GEAR-IDLER EXIT
ROLL ASSY FUSER
GEAR-IDLER
BELT ASSY
GEAR 2ND
GEAR HR
MOTOR ASSY FSR
DRIVE ASSY BTR
GEAR-28
GEAR-27
MOT ASSY MICRO
2ND BTR ASSY
TRANSFER ASSY
FRONT

FUSER
Fuser Exit Sensor
Fuser In Sensor
Regi Clutch
Registration Sensor
Paper Handler (P/H) Motor
Pre Regi Clutch
OHP Sensor

ADF Motors
ADF Motor (PPL Ref # 14-02-16)
Drives the paper feed mechanism to transport the document from the document tray to the scanning section. If the motor is defective, replace the entire ***ADF Assembly*** (PPL Ref # 13-01-23).

## Scanner Motors
Carriage Motor (PPL Ref # 18-01-13)
Drives the ***Carriage Assembly (Optic Unit)***. If the motor is defective, replace the entire ***Scanner Assembly*** (PPL Ref # 18-01-29).

Solenoids

Printer Solenoids

Pick Up Solenoid (PPL Ref # 04-01-23)

The **Pick Up Solenoid** is energized when Paper Feed is initiated. The **Pick Up Solenoid** controls the rotation of the **Pick Up Gear**. When the solenoid is energized, the **Pick Up Gear** is unlocked and the **MSI Roll** is rotated by the **PH Motor**, causing a sheet of paper to be fed into the printer.
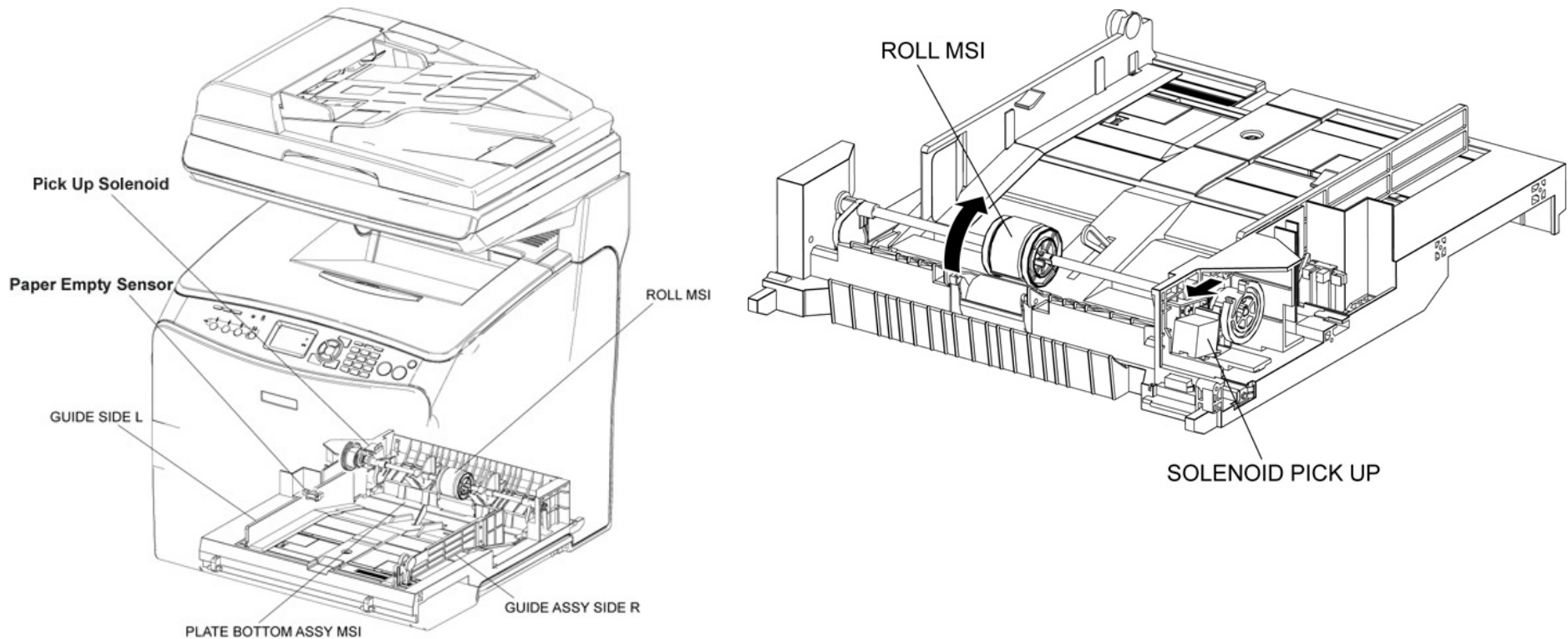
ADF Solenoids

There are no solenoids in the **ADF Unit**.

Scanner Solenoids

There are no solenoids in the **Scanner Unit**.
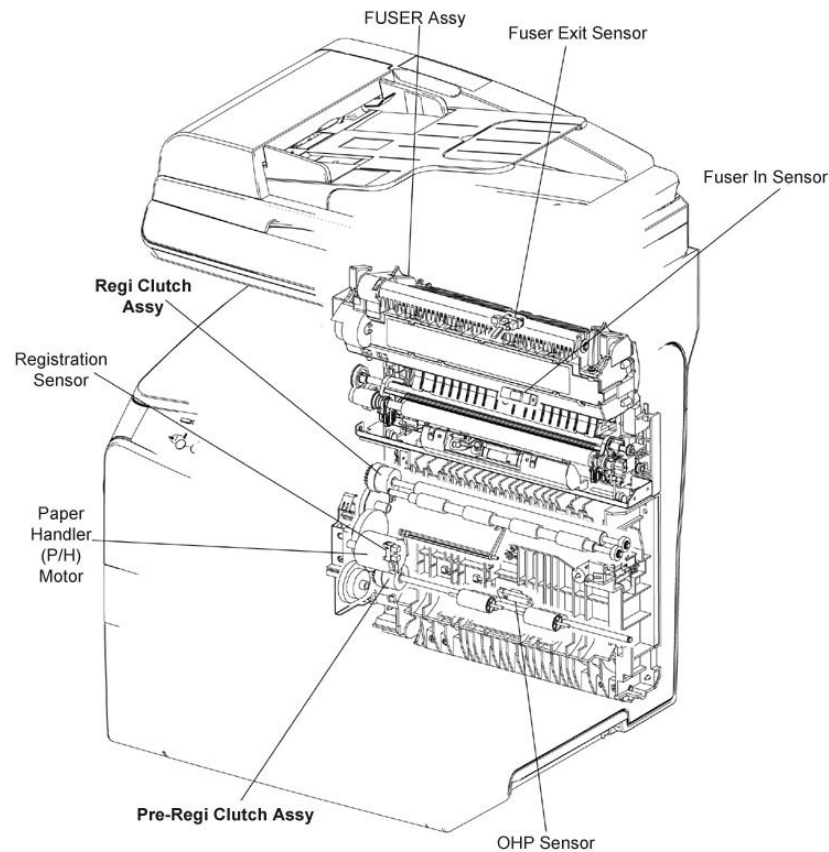
Clutches

Printer Clutches

Pre-Regi Clutch Assembly (PPL Ref # 05-02-22)

When the **Pre-Registration Clutch Assembly** is energized, the drive from the **PH Motor** is transmitted to the **Pre-Registration Roll Assembly** and paper is fed to the registration section.

Regi Clutch Assembly (PPL Ref # 05-02-02)

When the **Registration Clutch Assembly** is energized, the drive from the **PH Motor** is transmitted to the **ROLL-REGI METAL** and paper is fed to the transfer section.

ADF Clutches
Pick Up Roller Clutch (PPL Ref # 17-04-02)
Provides *ADF Motor* drive energy to the *Pick Up Roller*. The clutch is turned on to transmit the motor drive to the *Pick Up Roller* when the *DOC Sensor* detects that a document is in the document tray and the **Copy**, **Fax**, or **Scan** button is depressed.

Scanner Clutches
There are no clutches employed in the *Scanner Unit*.

CIRCUIT BOARDS AND THEIR FUNCTIONS

Printer Circuit Boards

PWBA MCU (PPL Ref # 12-02-01)
PWBA MCU is the Print Engine Controller. It performs communication with the printer controller (*PWBA ESS* /Main Logic Board) and controls the components used to perform printing operations.

LV/HVPS (PPL Ref # 12-02-03)
LV/HVPS generates +24 VDC, + 5VDC and +3.3 VDC throughout the printer and generates the high voltage required for transferring toner throughout the print process and discharging the *OPC Drum*.

PWBA HVPS (PPL Ref # 12-01-09)
PWBA HVPS supplies high voltage to the *IBT Cleaner*, *2nd BTR*, and *Cleaning Sheet*.

PWB ASSY ROT (PPL Ref # 12-01-10)
PWB ASSY ROT creates the drive for the motors based on input signals from the *PWBA MCU* and supplies the pulse signal to the motors.

PWBA ESS (PPL Ref # 12-02-07)
PWBA ESS is the Main Logic Board. It converts print data transmitted via an I/O port (network, USB, parallel port, etc.) and communicates with a host computer. The memory can be expanded up to 512 MB with an optionally available additional memory.

PWBA Fuser Control (PPL Ref # 12-02-12)
Provides AC Power to the fuser. Also contains the main AC input fuse and AC filter circuits for the power supplies.

OP PANEL (PPL Ref # 01-01-17)
OP PANEL displays the printer status on the LCD or by LEDs. Printer operations are performed by depressing the buttons on the *OP PANEL*.

Fax Board (PPL Ref # 12-02-16)
Provides the interfacing and protocol handling between the unit, the Telco and distant end fax machine.

Network Board (PPL Ref # 12-02-09)
Provides the interfacing and protocol handling between the unit and an ethernet network.

Scanner Circuit Boards

The scanner mechanism is powered and controlled directly by the main controller (**PWBA ESS**). It does not have its own control circuit.

The scanner power requirements are +24VDC (to drive the CR Motor and power the Inverter Circuit), +12VDC and +5VDC (for the CCD Sensor), and +3.3VDC (for the Home Sensor and the Magnet Sensor). The control signals to the scanner unit from the main controller are CCD Sensor drive control, CR Motor drive control, and ADF drive control.

CCD Sensor Board (PPL Ref # 18-01-14)
Contains a Color CCD line sensor and a control circuit for the Color CCD line sensor.

Inverter Board (PPL Ref # 18-01-27)
Generates the voltage for the scanner lamp.

ADF Circuit Boards

ADF PCB (PPL Ref # 13-01-08)
Generates motor drive and an interface between the ADF sensors and the **PWBA ESS** (Main Logic Board).

SWITCHES AND SENSORS

Switches

Printer Switches

Test switches with AC Power *OFF*. Set your multimeter to read resistance (ohms). The switch should toggle between open/shorted or shorted/open when activated/deactivated. Either type of reading is acceptable.
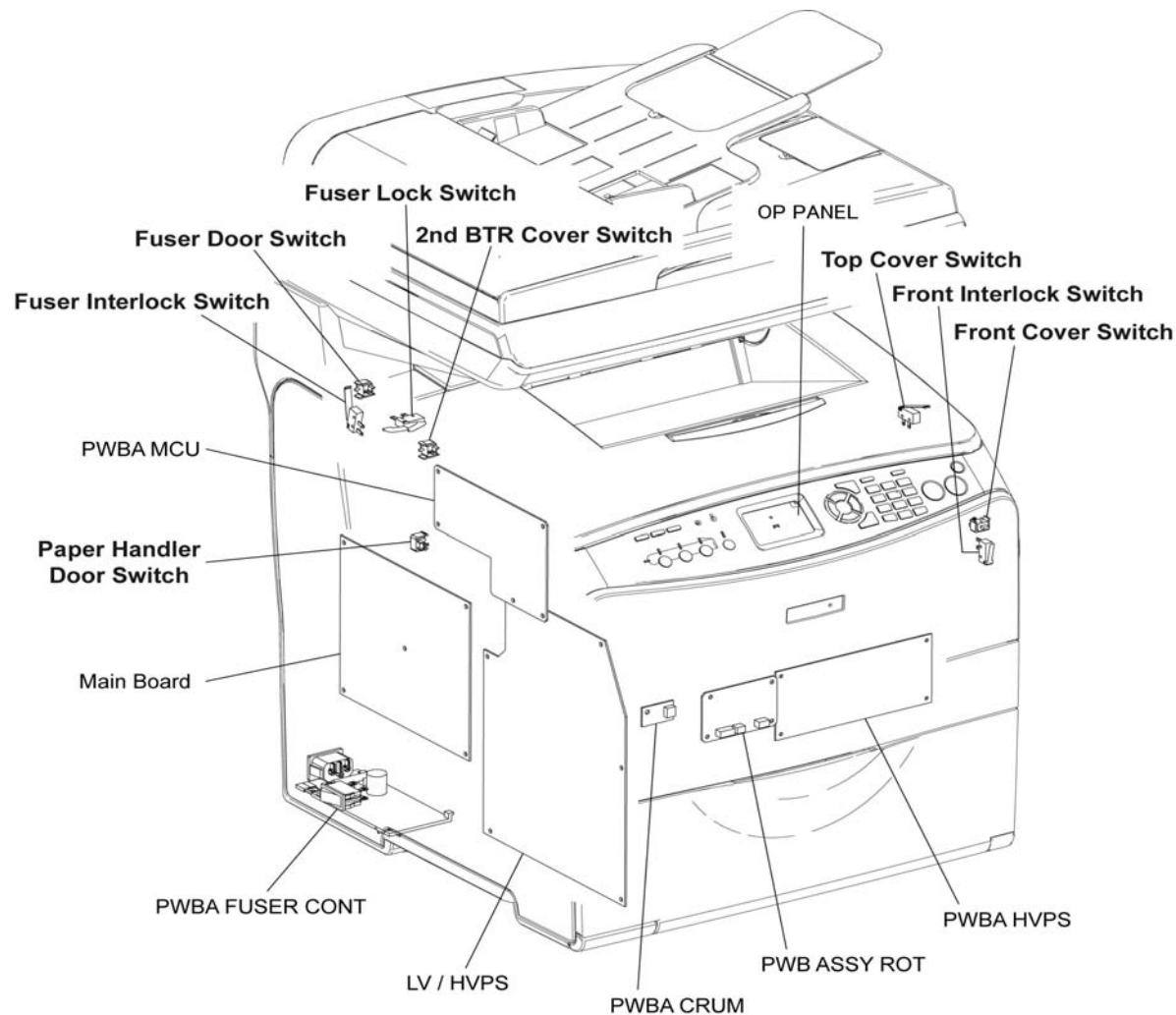
2nd BTR Cover Switch (PPL Ref # 06-01-18)
Detects whether the **COVER, PR 2ND** is opened or closed.

Front Interlock Switch (PPL Ref # 01-01-27)
Cuts the +24VDC power supply for driving motors and other parts when the **Front Cover Assembly U** is opened.

Front Cover Switch (PPL Ref # 01-01-26)
Detects whether the **Front Cover Assembly** is opened or closed.

Fuser Door Switch (PPL Ref # 01-01-36)
Detects whether the **FUSER COVER** is opened or closed.

Fuser Interlock Switch (PPL Ref # 01-01-34)
Cuts the +24VDC power supply for driving motors and other parts when the **Fuser Cover** is opened.

Fuser Lock Switch (PPL Ref # 10-01-06)
Detects that the **FUSER ASSY** is properly installed. When the **FUSER ASSY** is not properly installed, the **FUSER LOCK SWITCH** cuts the power to the **Fuser Lamp power supply relay** inside the **PWBA FUSER CONT**, causing a service call error "**E537 FUSER ASSY error**" which prevents the printer from operating.

Paper Handler Door Switch (PPL Ref # 14-02-11)
Detects whether the **CHUTE ASSY REAR** is opened or closed.

Top Cover Switch (PPL Ref # 01-01-07)
Cuts the +24VDC power supply for driving motors and other parts when the **Top Cover** is opened.

ADF Switches

*Document Width Sensors (Switches) (*PPL Ref # 13-03-08 (Ltr) & 13-03-09(B5))

Detects the positions of the side edge guides on the document tray. The two **Document Width Sensors** detect document size (width) by combination action as follows.

Edge Guide Position	B5 Sensor	LT Sensor
Letter size	OFF	ON
A4 size	OFF	OFF
B5 size	ON	OFF

If one of these switches is defective, replace the entire **ADF Assembly** (PPL Ref # 13-01-23)

Sensors

Printer Sensors

1. Test switches with AC Power **ON**. Set your multimeter to read DC volts. The sensor should toggle between high/low or low/high when activated/deactivated. Either type of reading is acceptable.

2. Most sensors listed below can malfunction due to an accumulation of toner and/or paper particles. Before replacing a sensor listed below, clean the sensor with a soft cloth.

3. Sensor locations within the printer are depicted in drawings at the end of this section.

2nd BTR Retract Sensor (PPL Ref # 06-01-22)

Detects the position of the **BTR**. When the **BTR** is in the Home Position, the actuator blocks the sensor. When the BTR is Out of Home Position, the actuator is out of the sensor.

ADC Sensor (PPL Ref # 06-01-20)

Reads the toner patch densities on the **Belt** immediately before secondary transfer and converts the read densities to voltage values. These voltage values are used for controlling toner density.

Fuser Exit Sensor (Must replace Fuser Assembly PPL Ref # 10-01-01)
Detects that paper has been ejected from the **Fuser**. (No paper state = shielding the sensor)

Fuser In Sensor (PPL Ref # 06-01-03)
Detects that paper has come to just before the fusing section.

Humidity & Temperature Sensor (PPL Ref # 12-01-06)
Detects the humidity and temperature inside the printer and converts these to voltage values. These voltage values
are used for controlling toner density

IBT Retract Sensor (PPL Ref # 06-01-26)
Detects the position of the cam for retracting the **Belt Cleaner**.

OHP Sensor (PPL Ref # 05-02-16)
Detects whether the print media is plain paper or transparencies. If the light emitted from the LED of the sensor is
reflected by the media, the sensor judges that the media is plain paper.

Paper Empty Sensor (PPL Ref # 04-01-24)
Detects the presence of paper. When the printer runs out paper, the actuator of the sensor comes down by its own
weight, shields the sensor, and a no paper state is detected. (No paper state = shielding the sensor)

Registration Sensor (PPL Ref # 05-02-19)
Detects that the leading edge of the paper has reached the **Regi Assy**. (No paper state = light enters the sensor)

**Rotary Home Position Sensor** (PPL Ref # 09-01-18)
Detects the position of the **Rotary Developer** to keep the **Developer** in the correct position. The home position is
about 10 degrees CW from the transfer position of the **Black Toner Developer**.

TR-0 Sensor (PPL Ref # 07-01-02)
Detects the **Belt** position by reading the silver label on the **Belt** surface outside of the toner image formation area.

Toner Full Sensor (PPL Ref # 07-01-24)

Detects the state of the *Waste Toner Box*. The *Waste Toner Box* contains an actuator for blocking light entering the sensing element of the *Toner Full Sensor*. The actuator falls by the weight of the toner. When the actuator blocks the *Toner Full Sensor*, the printer detects that the *Waste Toner Box* is full.
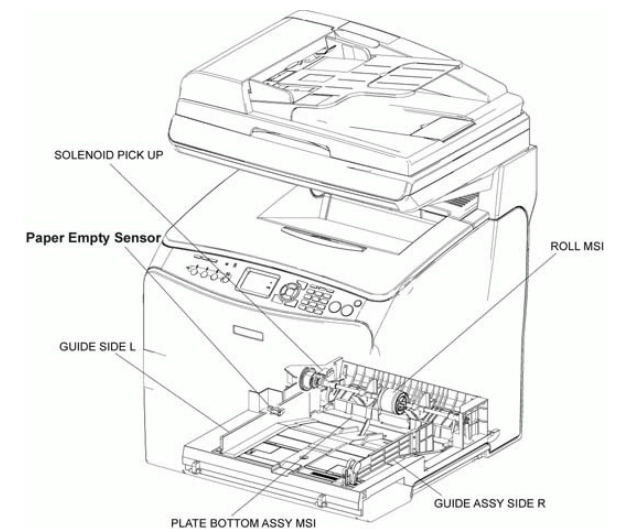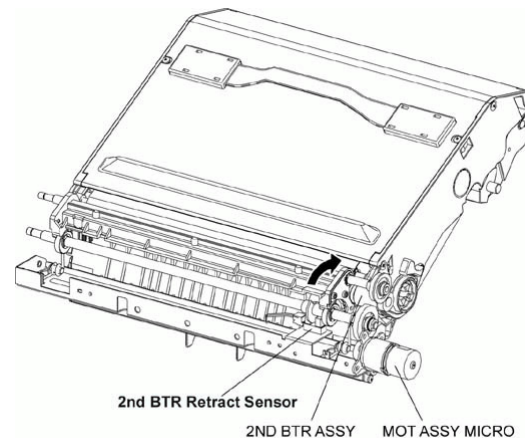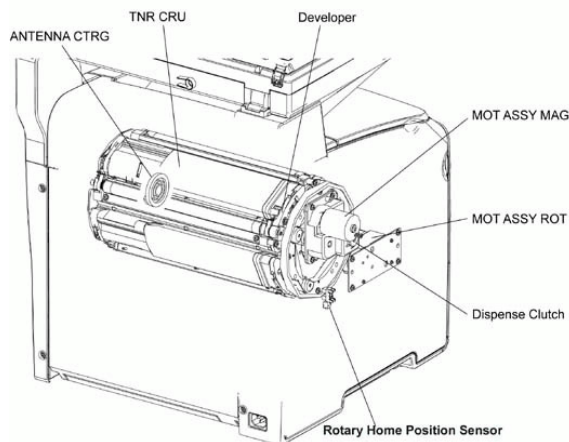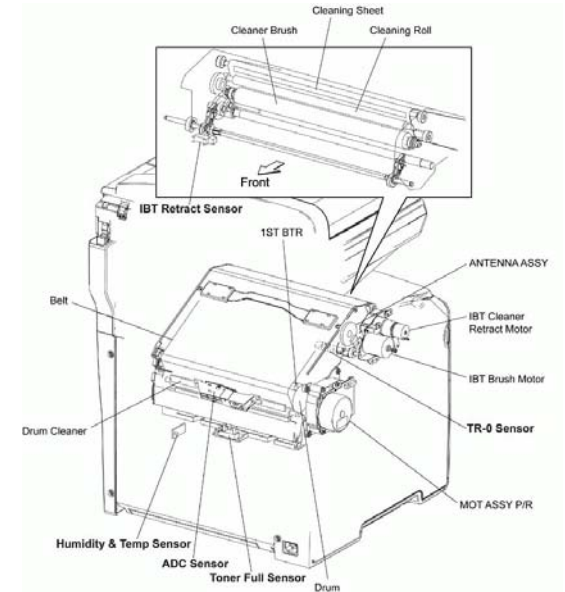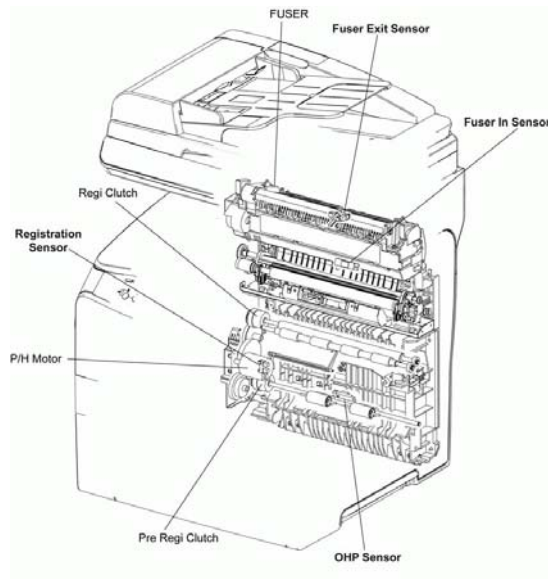
ADF Sensors

ADF Cover Open Sensor (PPL Ref # 14-02-11)

Detects whether the ***ADF Cover*** is opened or closed. The sensor turns ON when the ***ADF Cover*** is opened causing the ***ADF Motor*** to stop and the clutch to turn off. If the sensor is defective, replace the entire ***ADF Assembly*** (PPL Ref # 13-01-23)

> ***Note: This is a Magnet Sensor. This type of sensor detects a magnetic field of a specific polarity. To toggle this sensor, move a magnet close to the sensor then remove the magnet. If there is no change in the sensor's output, change the polarity of the magnet and retest.***

AS Sensor (PPL Ref # 17-04-09)

The sensor turns ON when it detects the leading edge of the document, and turns OFF when it detects the trailing edge of the document. Scanning operation for the next document is started if the ***DOC Sensor*** is ON when the ***AS Sensor*** becomes OFF. If the sensor is defective, replace the entire ***ADF Assembly*** (PPL Ref # 13-01-23)

Doc Sensor (PPL Ref # 17-04-12)

Detects whether a document is loaded onto the document tray or not. The document should be loaded with its leading edge contacting the guide for it, otherwise the sensor cannot detect the document. If the sensor is defective, replace the entire ***ADF Assembly*** (PPL Ref # 13-01-23)

RS Sensor (PPL Ref # 17-04-09)

Detects whether a document is on the ***Turning Roller*** or not. Document scanning is started after the document's leading edge is detected by the ***RS Sensor***. If the sensor is defective, replace the entire ***ADF Assembly*** (PPL Ref # 13-01-23)

Scanner Sensors

ADF/Document Cover Open Sensor (Not Referenced in the PPL)

Detects the open/close status of the ***Document Cover*** (CX-11N) or the ***ADF Assembly*** (CX-11NF). It is attached to the underside of the Scanner's upper case front right corner. If the ***Document Cover*** (CX-11N) or the ***ADF Assembly*** (CX-11NF) is opened while the scanner is in standby mode, the ***Scanner Lamp*** is turned on and the ***Carriage Unit*** moves to its home position. If the sensor is defective, replace the entire ***Scanner Assembly*** (PPL Ref # 18-01-29).

> ***Note: This is a Magnet Sensor. This type of sensor detects a magnetic field of a specific polarity. To toggle this sensor, move a magnet close to the sensor then remove the magnet. If there is no change in the sensor's output, change the polarity of the magnet and retest.***

Home Position Sensor (Part of ***CCD Module Assy*** PPL Ref # 18-01-14)

The ***Home Position Sensor*** is attached to the bottom of the scanner's ***Carriage Unit*** (***CCD Module Assy***). It detects the carriage home position by detecting the flag located near the left side of the scanner's lower housing. If the sensor is defective, replace the entire ***Scanner Assembly*** (PPL Ref # 18-01-29)

DISASSEMBLY/ASSEMBLY

Right Side Cover Assembly Removal

Removing the **Right Side Cover Assembly** can be difficult if the instructions below are not followed explicitly. If these instructions are not followed, It is quite possible to damage the cover. Follow the steps listed below to remove the **Right Side Cover Assembly**.

1. Open **COVER ASSY TOP**.

2. Open **COVER FRONT ASSY U**.

3. Open **COVER MSI**.

4. Remove the 4 screws (silver, with flange, 8 mm) fastening the **Right Side Cover Assembly** to the main unit.

5. Lift up at the 3 points depicted in the figures on the following 2 pages to unhook the 3 hooks at the top of the **Right Side Cover Assembly** from the holes on the main unit.

> **CAUTION**
>
> **!**
>
> *If you use a tool such as a flat blade screwdriver, take care not to gouge or mar the Right Side Cover.*

6. Lift up on the **Right Side Cover Assembly** and remove the **Right Side Cover Assembly**.

Reassembly Note

Install the *Right Side Cover* Assembly as follows:

1. Place the bottom edge of the *Right Side Cover* into its proper position.

2. Pivot the *Right Side Cover* into position.

3. Lift up on the Front Top tab and position the tab onto the metal frame.

4. Lift up the Top tabs and gently push the *Right Side Cover* into position, ensuring that the tabs drop into their slots in the metal frame.

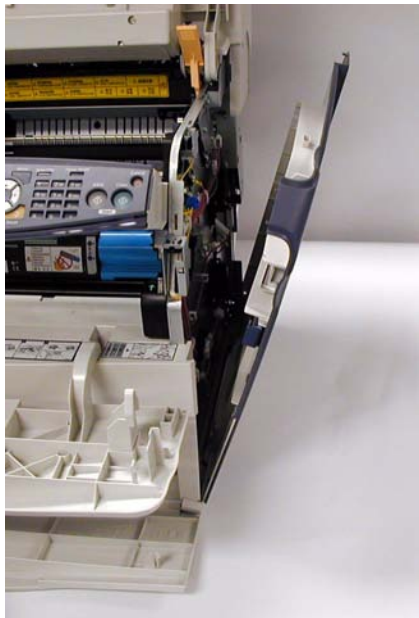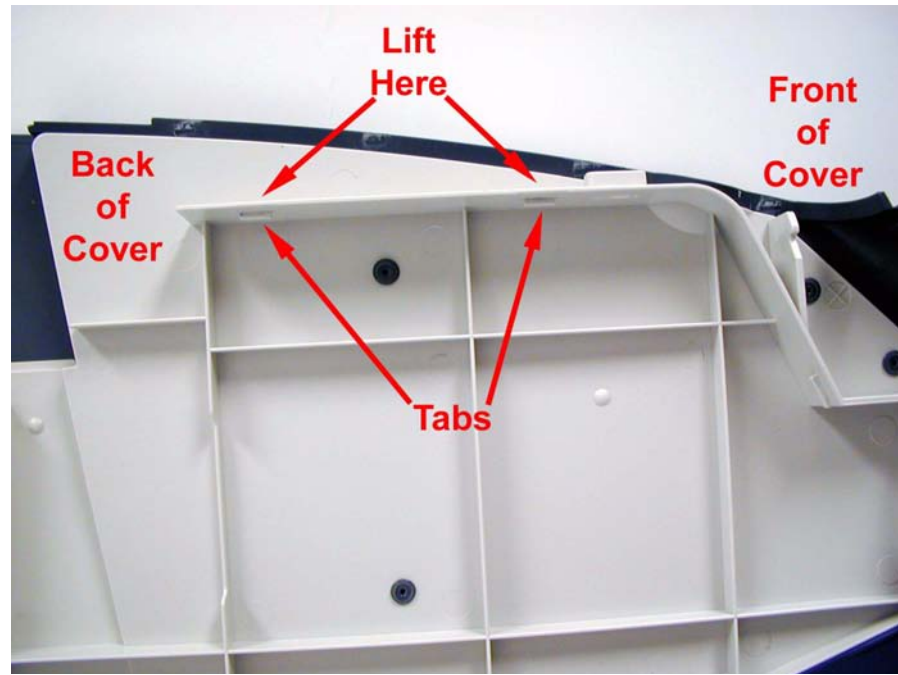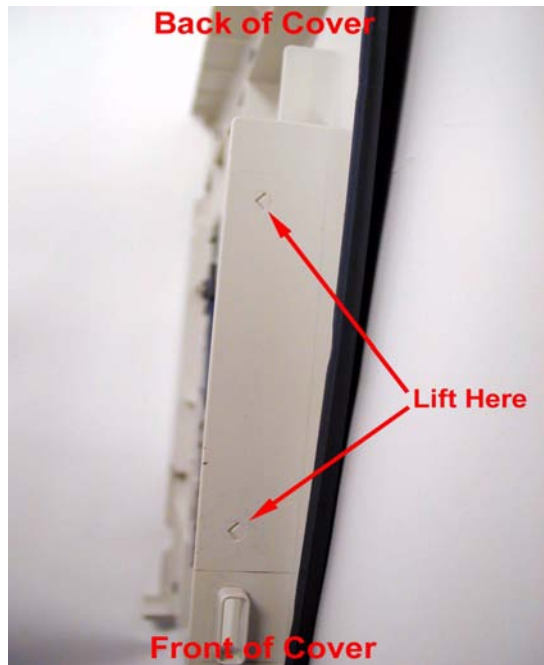| CAUTION !	*Do not press the Right Side Cover into position without ensuring that the tabs have cleared the metal frame.*

Grey Part

Off-White Part

The off-white and grey parts are one assembly.
Do Not try to separate these pieces.

Lift Here

Tab

Lift Here

TROUBLESHOOTING

Error Message During Power-up/Warm-up

When an error occurs during the Power-up Sequence or during the Warm-up Sequence refer to the Error Codes and Warnings chart below and to the Power-up/Warm-up Sequence Flowchart to isolate the cause of the error.

Page references are AcuLaser CX11/CX11F Service Manual page references.

FIP = Fault Isolation Procedure

Error Codes and Warnings

Panel Message	Description
SYSTEM ERRORS	
Service Req Cffff	Controller related service request "3.4.4.2 List of Service Request" (p149)
Optional RAM Error	
Invalid N/W Module	
Service Req C2010	Fax uninstalled (for fax model only)
Service Req C2011	_**ADF**_ uninstalled (for fax model only) _(p.286)_
Service Req C2012	N3R ASIC Error
ROM writing error	Failed to update the data
Fax Error	Start up initialization could not be performed normally, however, the product can recover from the error.
Scanner Error	Start up initialization could not be performed normally, however, the product can recover from the error. (Motor error, _**Scanner**_ error)
PRINTER ERRORS	

Panel Message	Description
Service Req Eggg	Engine related service request "3.4.4.2 List of Service Request" (p149)
Check Transparency	"Error list related to paper jam" (p146)
Paper Jam WWWWW	"Error list related to paper jam" (p146)
Irregular Density	" Other errors and warnings" (p147)
Remove Photoconductor	
Install uuuu TnrCart	" Other errors and warnings" (p147)
Wrong Toner	" Other errors and warnings" (p147)
Toner Cart Error uuuu	" Other errors and warnings" (p147)
Install Photoconductor	" Other errors and warnings" (p147)
Wrong Photoconductor	" Other errors and warnings" (p147)
Photoconductor Trouble	" Other errors and warnings" (p147)
Replace Toner uuuu	" Other errors and warnings" (p147)
Replace Photoconductor	" Other errors and warnings" (p147)
wwwww open	" Other errors and warnings" (p147)
Print Overrun	
Need more Memory	
Invalid Data	
uuuu Toner Low	" Other errors and warnings" (p147)
Worn Photoconductor	" Other errors and warnings" (p147)
Worn Fuser	

Panel Message	Description
SCANNER ERRORS	
Scanner cover open error	*(p.285)*
PC connection failed	• The computer is not connected directly to the product. • Required application has not been installed.
Net connection failed	
ADF Jam	*(p.286)*
Release Carriage Lock	*(p.285)*
FAX ERRORS	
Fax error	Fax unit failure. *(p.288)*
Set Document to ADF	When Legal is selected by Fax mode *(p.288)*
Fax Communication Error	An error occurred during transmitting/ receiving faxes. *(p.288)*
No Report Print Info.	*(p.288)*
Cannot Send when Receiving	Fax cannot be transmit during Fax reception. *(p.288)*
Unable to Transmit Color Fax	At the time of color Fax transmission, if the telephone line is used, color transmission is impossible. For this reason, transmitting does not become " Cannot Send when Receiving ".
Cannot Fax cause of Power Off Report	Transmitting a fax is attempted while the unit is printing a power off report. *(p.288)*
COPY MODE ERRORS	
Document Error	For counterfeit prevention

Warnings and Errors

Class	Panel Message	Error LED	Description	See FIP
Warning	**Y Toner Low**	---	The toner supply time of the ***Yellow Toner Cartridge*** has reached the preset time. The printer, however, can be operated.	64 (p.237)
	M Toner Low	---	The toner supply time of the ***Magenta Toner Cartridge*** has reached the preset time. The printer, however, can be operated.	65 (p.238)
	C Toner Low	---	The toner supply time of the ***Cyan Toner Cartridge*** has reached the preset time. The printer, however, can be operated.	66 (p.239)
	K Toner Low	---	The toner supply time of the ***Black Toner Cartridge*** has reached the preset time. The printer, however, can be operated.	67 (p.240)
	Worn Photoconductor	---	The ***Waste Toner Box TONER FULL SENSOR*** has detected a toner full state. The printer, however, can be operated.	68 (p.241)
		---	The number of drum rotations has exceeded the specified value. The printer, however, can be operated.	69 (p.242)
Error	**Install Y TnrCart**	ON	The ***Yellow Toner Cartridge*** is not installed or not installed correctly.	1 (p.153)
	Install M TnrCart	ON	The ***Magenta Toner Cartridge*** is not installed or not installed correctly.	2 (p.154)
	Install C TnrCart	ON	The ***Cyan Toner Cartridge*** is not installed or not installed correctly.	3 (p.155)
	Install K TnrCart	ON	The ***Black Toner Cartridge*** is not installed or not installed correctly.	4 (p.156)
	Install Photocondctr	ON	The ***Photoconductor Unit*** is not installed or not installed correctly.	5 (p.157)
	Photocondctr Trouble	ON	A communication error occurred between ***PWBA MCU*** and ***ANTENNA ASSY*** (***CRUM XERO***).	6 (p.158)
			An error occurred when writing data to ***ANTENNA ASSY*** (***CRUM XERO***).	7 (p.159)
			A ***Photoconductor Unit*** with a memory of different specification device is attached.	8 (p.160)
	Wrong Photocondctr	ON	A ***Photoconductor Unit*** of an incorrect specification is installed.	9 (p.161)
	TonerCart Error Y	ON	A communication error occurred between ***PWBA MCU*** and ***ANTENNA CTRG*** (***CRUM CTRIG***).	10 (p.162)
			An error occurred when writing data to ***ANTENNA CTRG*** (***CRUM CTRIG***).	11 (p.163)
			A ***Yellow Toner Cartridge*** with a memory of different specification device is attached.	12 (p.164)
	Wrong Toner Y	ON	A ***Yellow Toner Cartridge*** of a different specification is attached.	13 (p.165)

Class	Panel Message	Error LED	Description	See FIP
Error	**TonerCart Error M**	ON	A communication error occurred between ***PWBA MCU*** and ***ANTENNA CTRG*** (***CRUM CTRIG***).	14 (p.166)
			An error occurred writing data to ***ANTENNA CTRG*** (***CRUM CTRIG***).	15 (p.167)
			A ***Magenta Toner Cartridge*** with a memory of different specification device is attached.	16 (p.168)
	Wrong Toner M	ON	A ***Magenta Toner Cartridge*** of a different specification is attached.	17 (p.169)
	TonerCart Error C	ON	A communication error occurred between ***PWBA MCU*** and ***ANTENNA CTRG*** (***CRUM CTRIG***).	18 (p.170)
			An error occurred writing data to ***ANTENNA CTRG*** (***CRUM CTRIG***).	19 (p.171)
			A ***Cyan Toner Cartridge*** with a memory of different specification device is attached.	20 (p.172)
	Wrong Toner C	ON	A ***Cyan Toner Cartridge*** of a different specification is attached.	21 (p.173)
	TonerCart Error K	ON	A communication error occurred between ***PWBA MCU*** and ***ANTENNA CTRG*** (***CRUM CTRIG***).	22 (p.174)
			An error occurred when writing data to ***ANTENNA CTRG*** (***CRUM CTRIG***).	23 (p.175)
			A ***Black Toner Cartridge*** with a memory of different specification device is attached.	24 (p.176)
	Wrong Toner K	ON	A ***Black Toner Cartridge*** of a different specification is attached.	25 (p.177)
	Irregular Density	ON	Toner coverage of the image exceeds the limit.	45 (p.215)
	Replace Toner Y	ON	It is time to replace the ***Yellow Toner Cartridge***.	53 (p.225)
	Replace Toner M	ON	It is time to replace the ***Magenta Toner Cartridge***.	54 (p.226)
	Replace Toner C	ON	It is time to replace the ***Cyan Toner Cartridge***.	55 (p.227)
	Replace Toner K	ON	It is time to replace the ***Black Toner Cartridge***.	56 (p.228)
	Replace Photocondctr	ON	It is time to replace the ***Photoconductor Unit***.	57 (p.229)
		Blink	The number of drum rotations has exceeded the specified value.	69 (p.242)
	A Open	ON	***COVER FRONT ASSY U*** is open.	58 (p.230)
	E Open	ON	***CHUTE ASSY-REAR*** is open.	59 (p.231)
	F Open	ON	***CHUTE ASSY-FSR*** is open.	60 (p.232)
	C Open	ON	***COVER FUSER*** is open.	61 (p.233)
	G Open	ON	The ***Cover*** of ***Tray 1*** is open.	62 (p.234)

Service Required Error Messages

Class	Panel Message	Description	See FIP
Engine Related (E)	**Service Req E510**	*ROS Motor* Failure	40 (p.208)
		PWBA MCU could not receive signals output from *SOS Sensor* in *ROS* within the specified time.	
	Service Req E511	*TR0* Failure	39 (p.206)
		PWBA MCU could not receive signals output from *SENSOR TR-0* (*TR0 Sensor*) at the specified timing.	
	Service Req E513	NVRAM Error	38 (p.205)
		An error occurred in NVRAM on *PWBA MCU*.	
	Service Req E514	PAGE Timeout	37 (p.204)
		The PAGEC/PAGE signal was not received within 60sec after transmitting PFA.	
	Service Req E517	Communication Error Feeder	36 (p.203)
		A communication error occurred between *PWBA MCU* and *Feeder*.	
	Service Req E520	*BTR 2* Advance Error	47 (p.217)
		The *2nd BTR Retract Sensor* did not turn ON within the specified time.	
	Service Req E521	*BTR 2* Error	46 (p.216)
		The input of *2nd BTR Retract Sensor* did not change when *2nd BTR* is initialized.	
	Service Req E524	Low Density	44 (p.213)
		The output value of *SENSOR ASSY ADC* (*ADC Sensor*) is below the specified value.	
	Service Req E525	High Density	43 (p.211)
		The output value of *SENSOR ASSY ADC* (*ADC Sensor*) exceeds the specified value.	
	Service Req E526	*ADC Sensor* Contamination	42 (p.210)
		SENSOR ASSY ADC (*ADC Sensor*) error	

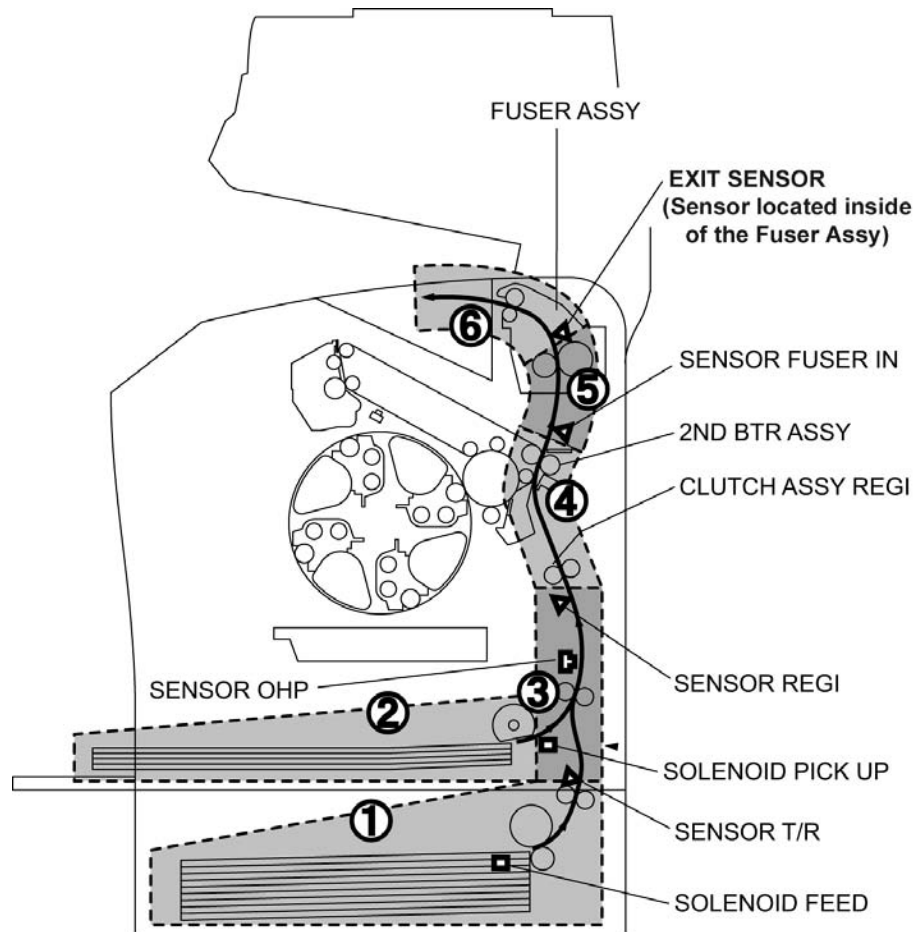| Class	Panel Message	Description	See FIP
Engine Related (E)	**Service Req E527**	***Rotary Home Position Sensor*** error	41 (p.209)
		PWBA MCU could not receive signals output from ***Rotary Home Position Sensor*** within the specified time after rotation of ***Rotary Developer***.	
	Service Req E530	***Humidity Sensor*** Error	50 (p.221)
		The input from ***SENSOR HUM & TEMP*** is out of specification.	
	Service Req E533	***Temp Sensor*** Error	49 (p.221)
		SENSOR HUM & TEMP detected a temperature below -7°C or over 55°C.	
	Service Req E537	***Fuser*** failure	48 (p.219)
		• Control Thermistor detected a temperature exceeding the specified temperature. Safety Thermistor detected a temperature exceeding the specified temperature. • The ***Control Thermistor*** did not detect Ready even though the specified time elapsed from ***Main Lamp*** ON at Warm Up. • The ***Main Lamp*** continues to stay lit even after time specified for the ***Main Lamp*** elapsed after the ***Control Thermistor*** detected Ready. • The ***Control Thermistor*** detected a temperature below the specified temperature even after the specified time elapsed from Main Lamp ON at Warm Up. • The latch lever of ***FUSER ASSY*** is set incorrectly.	
	Service Req E542	IBT CLN Fail	52 (p.224)
		SENSOR IBT RETRACT cannot detect Advance/Retract of ***CAM ASSY-IBT CL***.	
	Service Req E547	***Feed Motor*** Failure	51 (p.222)
		DRIVE ASSY FEED (***Feed Motor***) of the ***Feeder*** is not rotating at the specified speed.	
	Service Req E998	Engine Communication Error	70 (p.243)
		A communication error between the controller and the ***PWBA MCU*** via the video I/F occurred	

Class	Panel Message	Description	See FIP
Controller Related (C)	**Service Req C0017**	CPU error (undefined interruption)	C1 (p.245)
	Service Req C0081	CPU error (TLB modification exception)	
	Service Req C0082	CPU error (TLB miss exception [Load/Fetch])	
	Service Req C0083	CPU error (TLB miss exception [Store])	
	Service Req C0084	CPU error (address error exception [Load/Fetch])	
	Service Req C0085	CPU error (address error exception [Store])	
	Service Req C0086	CPU error (bus error exception [Fetch])	
	Service Req C0087	CPU error (bus error exception [Load/Store])	
	Service Req C0088	CPU error (SYSCALL exception)	
	Service Req C0089	CPU error (Break exception)	
	Service Req C0090	CPU error (reserving command exception)	
	Service Req C0091	CPU error (unused coprocessor exception)	
	Service Req C0092	CPU error (FPU exception)	
	Service Req C0093	CPU error (TLB exception)	
	Service Req C0094	CPU error (XTLB exception)	
	Service Req C0095	CPU error (cache exception)	
	Service Req C0096	CPU error (Trap exception)	
	Service Req C0097	CPU error (FPU exception)	
	Service Req C0098	CPU error (watch exception)	
	Service Req C0128 ~ 0254	CPU error (undefined trap)	
	Service Req C0255	CPU error (NMI exception)	

Class	Panel Message	Description	See FIP
Controller Related (C)	Service Req C0256	CPU error (divide by 0)	C1 (p.245)
	Service Req C0257	CPU error (arithmetic overflow)	
	Service Req C0258	CPU error (break occurrence)	
	Service Req C0800	IPL error (controller defect)	
	Service Req C0998	Engine communication error (only when power-on)	
	Service Req C0999	Engine flash ROM has no program data	C2 (p.246)
	Service Req C1002	Standard RAM error (standard size is undefined, etc.)	
	Service Req C1010	Verification error	
	Service Req C1020	RAM error (slot 0)	C3 (p.246)
	Service Req C1021	RAM error (slot 1)	
	Service Req C1120	ROM checksum error (bit 0 to 7) (program)	C4 (p.247)
	Service Req C1121	ROM checksum error (bit 8 to 15) (program)	
	Service Req C1122	ROM checksum error (bit 16 to 23) (program)	
	Service Req C1123	ROM checksum error (bit 24 to 31) (program)	
	Service Req C1200	EEPROM writing error	C1 (p.245)
	Service Req C1210	EEPROM writing times limit	
	Service Req C1400	Engine initialization error	
	Service Req C1500	CCNV hardware error	
	Service Req C1550	Initialization hardware error for SRAM for compression	
	Service Req C1600	Video series hardware error (including PWM IC calibration error)	
	Service Req C1610	Video series hardware error (VCNV error)	
	Service Req C1800	Illegal SPD	
	Service Req C1999	Other hardware errors	
	Service Req C2000	Software error	C5 (p.247)

Power-up Sequence Flowchart

Printer Paper Jams

FUSER ASSY

EXIT SENSOR
(Sensor located inside
of the Fuser Assy)

SENSOR FUSER IN

2ND BTR ASSY

CLUTCH ASSY REGI

SENSOR OHP

SENSOR REGI

SOLENOID PICK UP
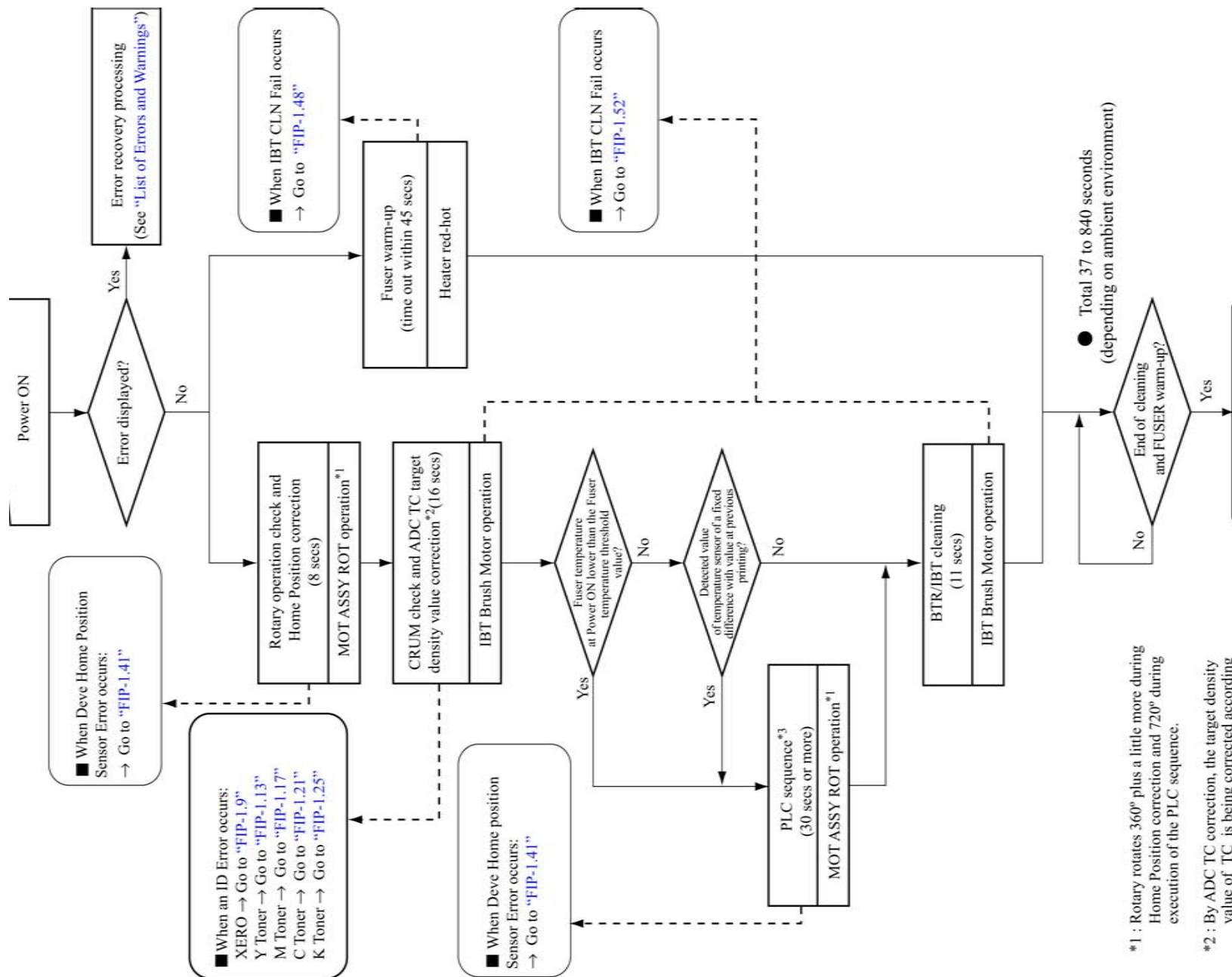
SENSOR T/R

SOLENOID FEED

List of Paper Jam Error

Panel Message	Jammed Location	Description	See FIP
Jam LC, G	(1)	The **SENSOR T/R** did not turn ON within the specified time from **SOLENOID FEED** - ON.	26 (p.178)
Jam MP, E	(2)	The **SENSOR REGI** did not turn ON within the specified time from **SOLENOID PICK UP** - ON.	27 (p.181)
Jam E	(3)	The **SENSOR REGI** did not turn ON within the specified time from **SENSOR T/R** - ON.	28 (p.183)
Jam E	(3)(4)	The **SENSOR REGI** did not turn OFF within the specified time from **CLUTCH ASSY REGI** - ON.	29 (p.186)
Jam E, F	(4)(5)	The **Exit Sensor** did not turn ON and **SENSOR FUSER IN** turned OFF within the specified time from **CLUTCH ASSY REGI** - ON.	30 (p.188)
Jam C, E, F	(4)(5)	The **Exit Sensor** did not turn ON and **SENSOR FUSER IN** turned ON within the specified time from **CLUTCH ASSY REGI** - ON.	31 (p.192)
Check Transparency	(3)	**SENSOR OHP** detected media other than OHP at the OHP setting or detected OHP at a setting other than OHP.	32 (p.196)
Jam E	(4)	The **SENSOR FUSER IN** did not turn ON within the specified time from **CLUTCH ASSY REGI** - ON.	33 (p.197)
Jam C	(4)(5)(6)	**Exit Sensor** did not turn OFF within the specified time from **SENSOR**	34 (p.200)

Print Quality

Incorrect Colors or Hueing
- Occurs when copying or faxing, but **not** when printing from a computer.
  1. Defective **Scanner**

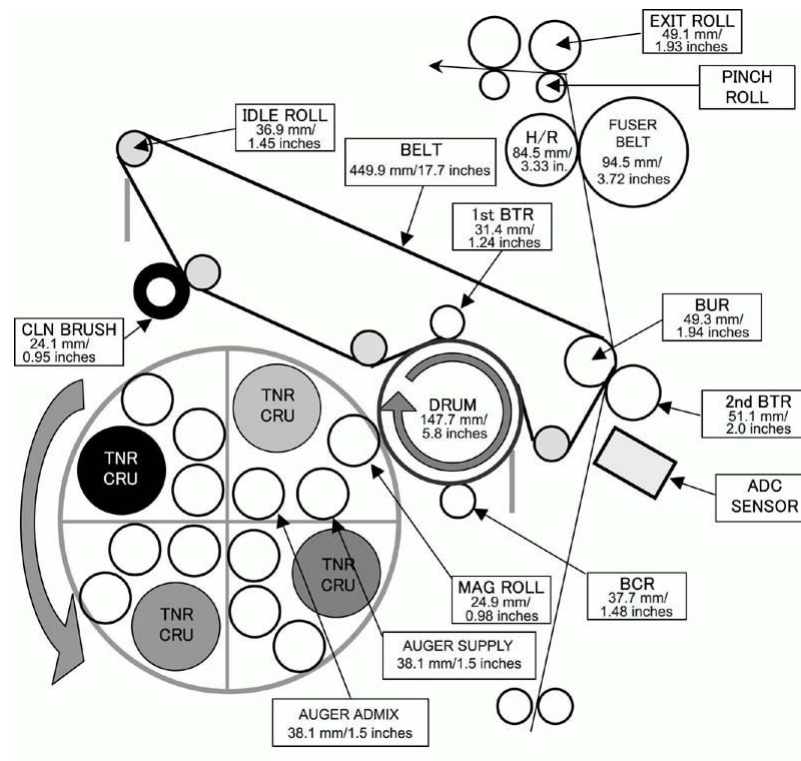### Streaks, Lines or Blotches in Print
Reference AcuLaser CX11/CX11F Service Manual Section 3.4.5.3
- Streaks are either continuous or evenly spaced down the page when printing from a computer, when copying **and** in received faxes.
  1. **Photoconductor Unit**
  2. **Toner Cartridge**
  3. **Developer Unit**
  4. **Fuser Assembly**
  5. Dirty **ROS Assembly**
  6. **PWBA Main (ESS)**
  7. **PWBA MCU**

When horizontal stripes and spots appear at fixed intervals, it is highly possible that a specific roll has caused the trouble. If this happens, you might be able to easily solve the problem by measuring the interval between the stripes or spots on a test print, and checking the relationship between the pitches shown in the table below (note that the pitch does not necessarily match the perimeter of the roller).

	Part (Roller) Name		Pitch (mm)
FUSER	FUSER ASSY	EXIT ROLL	49.1 mm/1.93 inches
		PINCH ROLL	25.1 mm/1.0 inches
		H/R	84.5 mm/3.33 inches
		FUSER BELT	94.5 mm/3.72 inches

	Part (Roller) Name		Pitch (mm)
XERO CRU	Photoconductor Unit	DRUM	147.7 mm/5.8 inches
		BCR	37.7 mm/1.48 inches
		1st BTR	31.4 mm/1.24 inches
		BUR	49.3 mm/1.94 inches
		IDLE ROLL	36.9 mm/1.45 inches
		CLN BRUSH	24.1 mm/0.95 inches
TRANSFER	2ND BTR ASSY	2nd BTR	51.1 mm/2.0 inches
DEVELOPER	HOUSING ASSY, DEVE.	MAG ROLL	24.9 mm/0.98 inches
		AUGER SUPPLY	38.1 mm/1.5 inches
		AUGER ADMIX	38.1 mm/1.5 inches
PR MOTOR	MOT ASSY P/R	-	7.5 mm/0.3 inches

Printer Component, Software Item, LCD Display, Printer Button

- Streaks are either continuous or evenly spaced down the page when copying and when sending faxes but *not* when printing from a computer or in received faxes.

    1. Dirty **Scanner Calibration Strip**

    2. Dirty **CCD Module Assembly**

    3. Dirty/scratched **scanner bed glass**

    4. Defective **CCD Module Assembly**

Light Print
Reference AcuLaser CX11/CX11F Service Manual Section 3.4.5.4 FIP-P1

    1. **Photoconductor Unit** not seated properly

    2. Bad connection between the **Photoconductor Unit** and the frame.

    3. Bad connections at the **PWBA LV/HVPS (Low Voltage/High Voltage Power Supply)**

    4. **PWBA LV/HVPS** (**Low Voltage/High Voltage Power Supply**)

    5. Dirty **ROS Assembly**

    6. **PWBA Main (ESS)**

    7. **PWBA MCU**

Blank Pages
Reference AcuLaser CX11/CX11F Service Manual Section 3.4.5.4 FIP-P2

    1. **Photoconductor Unit** not seated properly

    2. Bad connection between the **Photoconductor Unit** and the frame.

    3. **PWBA LV/HVPS** (**Low Voltage/High Voltage Power Supply**)

    4. **Photoconductor Unit**

    5. Dirty **ROS Assembly**

    6. **PWBA Main (ESS)**

    7. **PWBA MCU**

Solid Black Pages

Reference AcuLaser CX11/CX11F Service Manual Section 3.4.5.3 FIP-P3

1. Bad connection between the *Photoconductor Unit* and the frame.

2. *ROS Assembly*

3. *PWBA LV/HVPS* (*Low Voltage/High Voltage Power Supply*)

4. *Photoconductor Unit*

5. *PWBA MCU*

Vertical White Lines

Reference AcuLaser CX11/CX11F Service Manual Section 3.4.5.3 FIP-P4

1. Dirty *ROS Assembly*

2. *Photoconductor Unit*

3. *Fuser Assembly*

4. *ROS Assembly*

5. Obstruction in paper path between the *Photoconductor Unit*'s *2nd BTR Belt* and the *Fuser Assembly*.

Horizontal White Lines

Reference AcuLaser CX11/CX11F Service Manual Section 3.4.5.3 FIP-P5

1. Bad connection between the *Photoconductor Unit* and the frame.

2. *Photoconductor Unit*

3. *PWBA MCU*

4. *PWBA Main (ESS)*

5. *ROS Assembly*

Ghosting (Residual Image)
Reference AcuLaser CX11/CX11F Service Manual Section 3.4.5.3 FIP-P10

1. Bad connection between the *Photoconductor Unit* and the frame.

2. *Photoconductor Unit*

3. *PWBA LV/HVPS* (*Low Voltage/High Voltage Power Supply*)

4. *PWBA HVPS* (*High Voltage Power Supply*)

5. *Fuser Assembly*

Grey Background
Reference AcuLaser CX11/CX11F Service Manual Section 3.4.5.3 FIP-P11

1. Bad connection between the *Photoconductor Unit* and the frame.

2. *Sensor Assembly ADC*

3. *PWBA LV/HVPS* (*Low Voltage/High Voltage Power Supply*)

4. *PWBA HVPS* (*High Voltage Power Supply*)

5. *Photoconductor Unit*

6. *ROS Assembly*

7. *PWBA MCU*

8. *PWBA Main (ESS)*

Distorted Print
Reference AcuLaser CX11/CX11F Service Manual Section 3.4.5.3 FIP-P12

1. Bad connection between the *Photoconductor Unit* and the frame.

2. *Photoconductor Unit*

3. *ROS Assembly*

4. *PWBA Main (ESS)*

Wrinkled or Folded Paper
Reference AcuLaser CX11/CX11F Service Manual Section 3.4.5.3 FIP-P13

1. Paper out of spec or too moist

2. Obstruction/damage in the paper path

3. Worn/dirty rollers in the paper path

4. *MSI Roll Assembly*

5. *MSI Bottom Plate Assembly*

6. *MSI Retard Holder Assembly*

7. *Retard Plate Assembly*

Image Not Fixed (Fused) To Paper
Reference AcuLaser CX11/CX11F Service Manual Section 3.4.5.3 FIP-P14

1. *Fuser Assembly*

2. *PWBA LV/HVPS* (*Low Voltage/High Voltage Power Supply*)

3. *PWBA MCU*

4. *PWBA Main (ESS)*

Color Ghosting (Outlining)
Reference AcuLaser CX11/CX11F Service Manual Section 3.4.5.3 FIP-P15

1. *Sensor TR-0*

2. *Photoconductor Unit*

3. *PWBA Main (ESS)*

4. *P/R Motor Assembly*

Uneven Print Density
Reference AcuLaser CX11/CX11F Service Manual Section 3.4.5.3 FIP-P16

1. Bad **PWBA LV/HVPS (Low Voltage/High Voltage Power Supply)** Connections

2. **Photoconductor Unit**

3. **PWBA LV/HVPS** (**Low Voltage/High Voltage Power Supply**)

4. **PWBA HVPS** (**High Voltage Power Supply**)

5. **Developer Assembly**

Abnormal Noise

Abnormal Noise At Power-On
Reference AcuLaser CX11/CX11F Service Manual Section 3.4.6.2 FIP-N1

Use the flowchart located near the beginning of this chapter to determine what function is occurring when the noise begins.

1. **Motor Assembly ROT**

2. **Motor Assembly Micro**

3. **Motor Assembly P/R**

4. **Photoconductor Unit**

5. **MSI Roll**

6. **Frame Assy - Rotary**

Abnormal Noise During Standby
Reference AcuLaser CX11/CX11F Service Manual Section 3.4.6.2 FIP-N2

1. **Photoconductor Unit**

2. **Motor Assembly FSR**

3. **Fuser Assembly**

Abnormal Noise During Printing
Reference AcuLaser CX11/CX11F Service Manual Section 3.4.6.2 FIP-N3

1. *Photoconductor Unit*

2. *Developer Housing Assembly*

3. *Frame Assembly, Rotary*

4. *Fuser Assembly*

5. *Roll MSI*

6. *Motor Assy P/R*

7. *Motor Assembly Mag*

8. *Motor Assembly FSR*

9. *Motor Assembly Rot*

10. *Motor Assembly Micro*

11. *ROS Assembly*
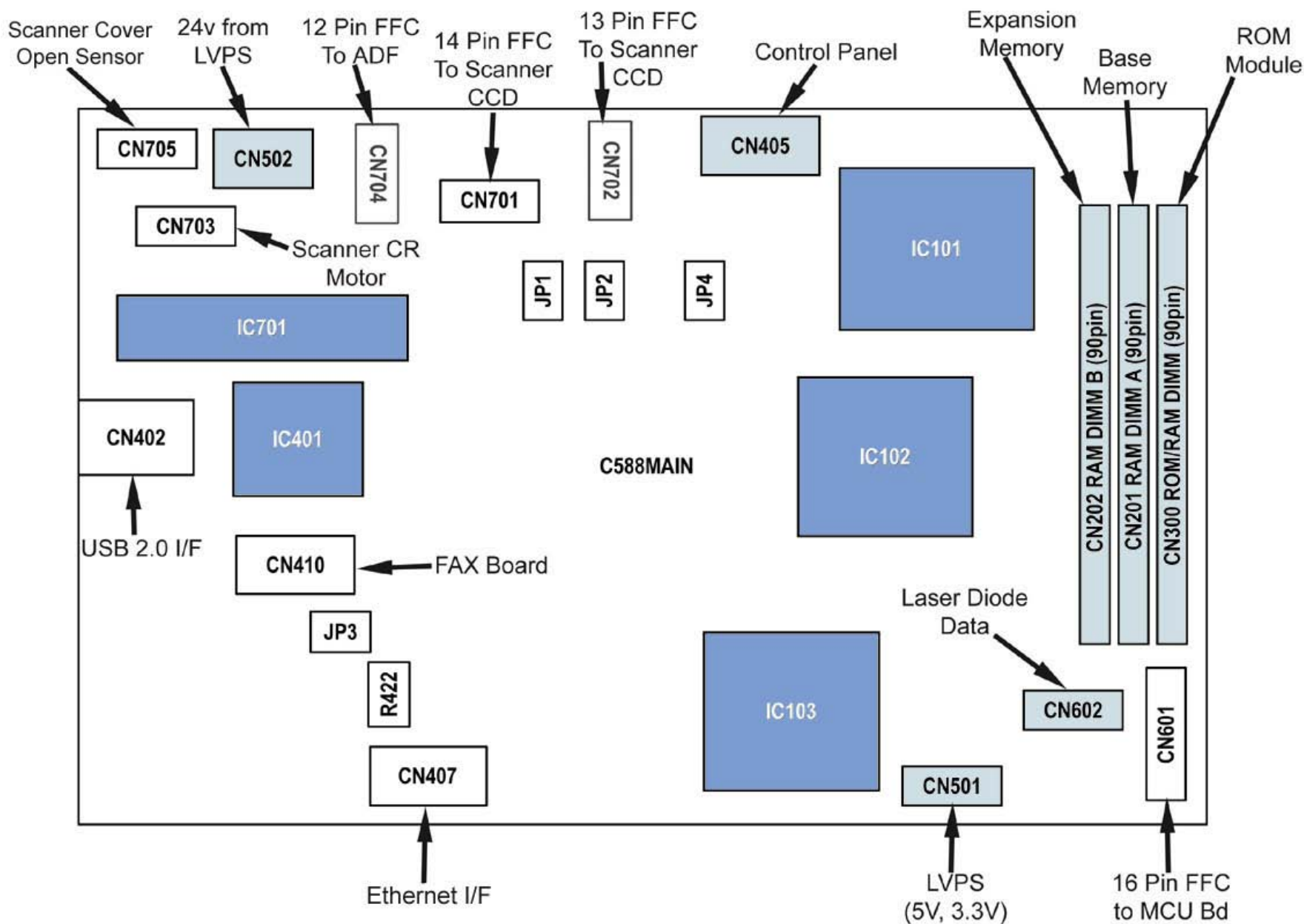
ADF (Automatic Document Feeder)

No Paper Feed

1. *ADF I/O Cable* (Reseat cable or replace the *ADF*)

2. *Motor* in *ADF* (Replace the *ADF*)

3. *Clutch* in *ADF* (Replace the *ADF*)

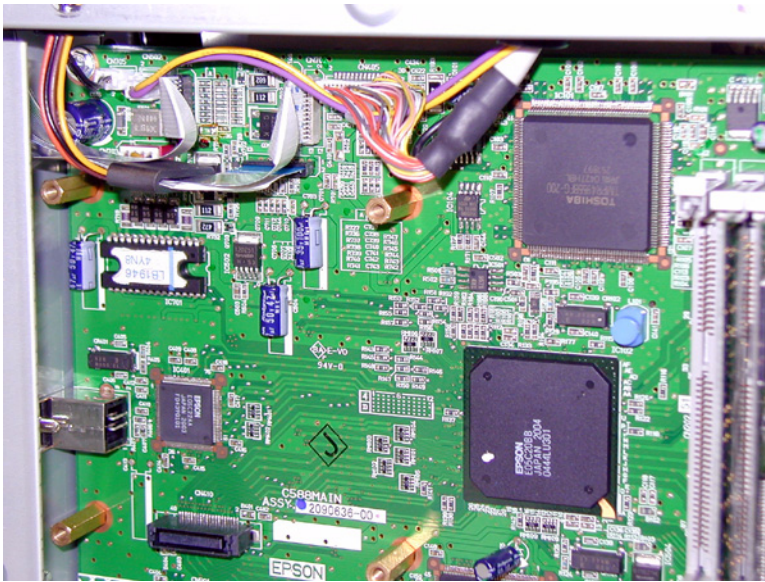4. *Scanner Unit PCB* (Replace the *Scanner Unit*)

5. *PWBA Main (ESS)*

Paper Jams/Misfeeds

1. Damaged original

2. Paper out of specification
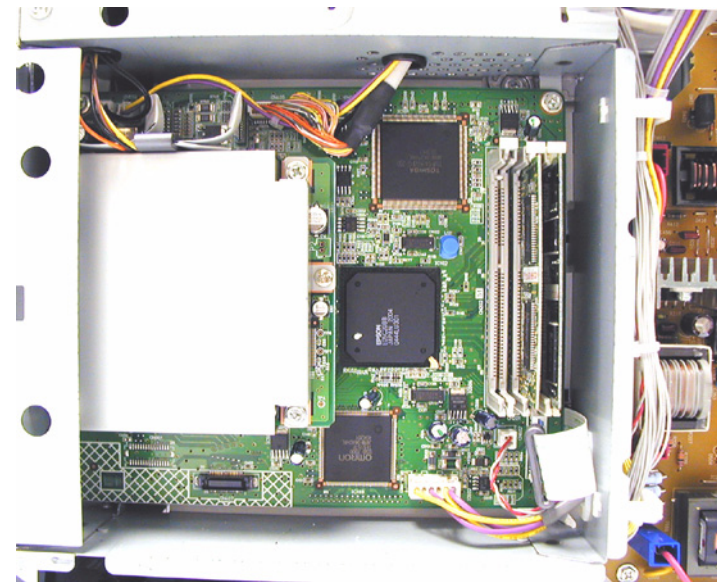
3. Defective *ADF* (*Automatic Document Feeder*).

APPENDIX

MAIN LOGIC BOARD CONNECTIONS

Fax Board Removed

Fax Board Installed